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ABSTRACT

The theory of structural cognitive modifiability and mediated learning experience and applied systems derived from it have generated extensive research. This collection of conference papers includes "The Endgame: Doing Educational Reform in the Autumn of its Life" (Madeline Long); "Responsibility and Educational Mediation" (Gaston Paravy); "Interface of Vygotskian and Mediated Learning Experience Paradigms in Teacher Training" (Alex Kozulin); "Reflective Teaching: Theoretical Aspects and Practical Implications" (Yaacov Rand and Rivca Reichenberg); "Organizational Flexibility" (Shmuel Rosen); "Cognitive, Affective and Academic Changes in Specially Challenged Inner City Youth" (James Kinard); "Learning Potential as a Basis for a Study and Conceptualization of the Four Groups of Gifted Students at Risk" (Maria Adriana Mowbray Beristain); "'On My Own': A Program for Developing Coping Skills for Adolescents at Risk" (Yael Shoshani); "Basic Ph: The Story of Coping Resources" (Mooli Lahad and Hava Ankor); "Enhancing the Effectiveness of the Counselor through the Application of Mediated Learning Experience" (Louis Falik); "Cognitive Enrichment in the Introduction to Physics" (Belisario F. Gutierrez, Leda A. Pena, and Jose R. Vignolo); "Instrumental Enrichment Intervention with Disabled Children, Adolescents, and Adults" (C. Morosini, E. Carravieri, E. Gnecchi, and C. Piacentini); and "Neurological and Psycho-Educational Rehabilitation" (C. Dornini, C. Gallione, G. Longhi, A. Maestri, D. Raddi, M. Rodocanachi, and G. Vigano). (Individual papers contain references.) (SM)

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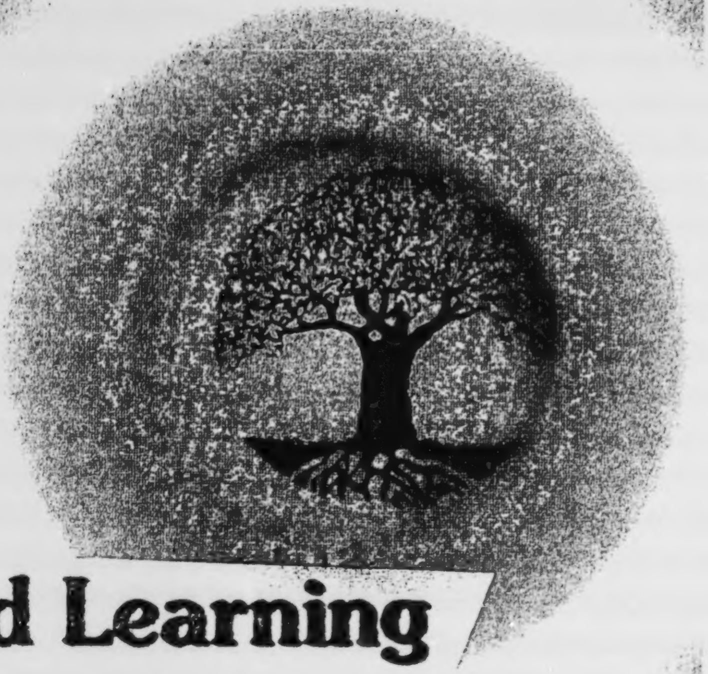

Mediated Learning Experience in Teaching and Counseling

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Proceedings of the
International Conferences
"Models of teacher training" and
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This book is dedicated to the blessed
memory of the great philanthropist
Ted Arison z"l.
His vision has been, and will continue to
be for generations to come, beneficial to
children and youth in need.

ICELP Series on Structural Cognitive Modifiability and Mediated Learning Experience

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The theory of Structural Cognitive Modifiability and Mediated Learning Experience and applied systems derived from it, has generated extensive research on theory, development of applied programs, and diversification of goals.

The need to create a forum to keep pace with new developments and bring them to the attention of researchers working in the fields of cognitive psychology and cognitive education has prompted us to organize a series of annual conferences related to the Theory of Structural Cognitive Modifiability and its various applications. These annual conferences organized by the ICELP/HWCRI in Israel have met with great enthusiasm. They bring strong momentum to the development of themes perceived as topical in different places.

The present volume is the third in a series of books to be published by the ICELP/HWCRI. The previous volumes were: Vol. I Mediated Learning Experience: Theoretical, Psychosocial and Learning Implications, 1991; Vol. II The Ontogeny of Cognitive Modifiability, 1997. *The books in this series will cover the theoretical and practical developments in the theories of Mediated Learning Experience and Structural Cognitive Modifiability and their applied systems. Readers are invited to send us their critical remarks, suggestions, and proposals for the future volumes.*

The Editorial Committee:

Prof. Reuven Feuerstein
Rabbi Rafi Feuerstein
Prof. Alex Kozulin

MEDIATED LEARNING EXPERIENCE IN TEACHING AND COUNSELING

Proceedings of the
International Conferences
“Models of teacher training”
and
“Educational advancement for youth at risk”

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◆ Foreword

Reuven Feuerstein

The concept of mediation has a long history and a great diversity of meanings and applications. Despite this long history, very little was written about mediation in the process of learning until the 1960s when Vygotsky's theory was first translated into English. Then, activities directed toward mediating such tools as verbal concepts or other elements affecting cognitive processes came into view, and a new conceptualization of mediation became salient and meaningful. The concept of *Mediated Learning Experience (MLE)* only became prominent in the literature of education and psychology following work done in the context of the development and elaboration of the theory of Structural Cognitive Modifiability (SCM) . Somewhat unfortunately, many people who were acquainted with the concept tended to give up on some of the basic characteristics of MLE and its role in SCM, and have used the term "mediation" abstracted and diluted from the theory, applying it in an overly broad and generalized way to undifferentiated practices of teaching and training. They thus fail to fully consider MLE as a quality of interaction which can be specified and operationalized in a precise and generalizable way. By reducing the concept of MLE they have lost the meaning of MLE as a pivotal element in SCM.

As a foreword to this book, which represents a collection of lectures given by many colleagues and experts in the applications of MLE, we feel the need to clarify, in a more adequate way, the concept of MLE, as it differs from mediation in general and mediated learning in particular, and present it in a way which will shed light on its specificity, goals, and modes of application and techniques.

MLE assumes two distinct roles in the broader theory of SCM. The first is an explanatory role: notably the fact that MLE as a quality of interaction is unique to the human species, considered as the determinant of the flexibility, modifiability, and propensity for higher levels of adaptability which characterizes the human being. If we ask what it is that makes human beings as adaptable as they prove to be, what makes them modifiable in the varieties of characteristics, functions, modalities of acting, capable of overcoming the laws of Nature by creating new ways of functioning; if we ask how we can explain the great changes humanity has gone through in thought and interactions, the answer lies in the unique cognitive flexibility of humanity, and human beings who benefit from the quality of MLE in their lives and cultures. Thus, from our point of view, MLE is primarily a hypothesis (but a very dynamic "working" hypothesis) which we use to explain the origins of human modifiability.

Where human modifiability is not demonstrated or observed, this indicates a lack of MLE in the individual or group, and according to our hypotheses explains the absence of the necessary flexibility, adaptability, and modifiability needed for growth and/or survival. The flexibility we describe as a consequence of MLE may even create flexibility in the neurobiological systems - even our brains are affected by MLE.

The second applied role of MLE is derived from the first. If indeed MLE is a major determinant of human modifiability, then a better understanding of MLE, a formulation of its characteristics and creative outcomes is of utmost importance and becomes a major tool for producing modifiability and flexibility for those human beings who, for one reason or another, have not benefited from the available opportunities to be mediated by society. In other words, when the quality of MLE is properly understood and analyzed in certain components, then when isolated and applied systematically it can become a modality of educational interaction to increase the modifiablity of the individual.

The first goal in explaining human modifiability involves a theoretical excursion into the quality of interaction that makes human beings what they are. The second goal becomes the creation of major "tools" for the parent, educator, therapist, or teacher who is transformed into a mediator who will shape the interaction between him or herself and the mediatee to respond to the specific needs to become an adaptive organism. MLE is not a universal, linear, or prescribed curriculum. Rather, it is not a curriculum at all, but a process orientation that is applied to a variety of experiences, some of which may be curricula. It is a quality of interaction shaped by specific needs of the cultural environment of the individual, responded to by the mediator in a specific, focused, and intentional way. MLE is, in many ways, the representative of the *dual ontogeny* of human existence - the biological and the sociocultural. Human modifiability cannot be explained solely by biological ontogeny. Our biology is confronted with an active dialogue with sociocultural dynamics, and is thus modified by this dialogue, the active dynamic of which is represented by the qualities of the MLE.

The most important ingredients of MLE, responsible in a universal way for human modifiability are:

(1) intentionality and reciprocity
(2) transcendence, and
(3) the mediation of meaning.

Intentionality and reciprocity are almost exclusively human. We cannot, except in very rare cases, observe intention with modification in animals, or in their interaction with a mediatee. The human being, animated by an intention to mediate to the child, modifies much behavior to respond to the individual. Observing interactions between human

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beings, one is struck by the amount of intention which shapes the interaction, which connects the awareness of the adult with the needs of the child and the demands of society. There are different qualities of intent, but their power to shape the interaction is enormous.

The same is true of reciprocity. Reciprocity describes the way the mediatee enhances the mediator's response and makes the individual aware of the intention in the interaction. The mediator explicitly explains the nature of the interaction, creating awareness in the mediatee of the form. content, and nature of what is occurring. This reciprocity, which is often observed even in the MLE interaction with very young children, creates the structures which enable the individual to mediate to him or herself that which was previously initiated and sustained by the mediator. The important mechanisms of imitation and identification are produced by this manner of eliciting and establishing the process of reciprocity in response to the mediator's intentions. Intentionality is accompanied by a process awareness in consciousness, varying in degree, depth, duration, and consistency. In certain cases, this consciousness lacks the mark of individuality, reflecting more a participation in a collective consciousness. This is typical for certain individuals living in cultures which create a strong collective participation in certain modes of thinking and modalities of shaping behavior and life.

The second parameter of the quality of the MLE interaction is **transcendence**. MLE is often elicited by a real state, condition, or necessity in the individual (for example, the feeding or dressing of a child). MLE, however, means that the experience is never limited to the specific conditions that elicit the interaction. There is a transformation. Providing food becomes an opportunity to produce awareness of differences in when one eats, what one eats, how and where one eats, etc. The child generalizes and the mediator transcends from the specific event to other elements, and a total change in the area of functioning takes place, shifting from the ingesting of food to the ingesting of a philosophy of thought. Transcendence is mostly human. We cannot see it as a form of learning in the animal realm. Transcendence permits the creation of new and rich need systems which are not always displaced, enlarged, sublimated or transformed needs (in the Freudian sense), but rather may extend to new needs which did not previously exist. Transcendence thus widens the modalities of the individual's functioning to areas previously nonexistent in the repertoire. The phenomenon of transcendence in the context of MLE is the quality of interaction that makes the human being really human.

One can see here the difference which the SCM postulates from the concepts of transformation which are common in the thinking of both Freud and Piaget. This is reflected in our concept of the generation new repertoires, with the tools and modalities of functioning developed in the human being by exposure to MLE. In my view, Vygotsky describes mediation in a framework that helps to either accelerate or materialize existing potentials. It is not clear to me whether Vygotsky adheres to the concept of generation of new mental or behavioral structures, as SCM postulates and MLE materializes.

The third parameter of MLE is the **mediation of meaning**. The mediator transmits and shapes the meaning of certain activities, and endows them with emotional qualities, creating attitudes and motivations toward particular acts. This is the affective/energetic substratum of our behavior - mental and behavioral. In this sense, the concept of MLE is meant to produce in the individual the cognitive, behavioral, and emotional structures which will turn him or her into a highly flexible and responsive organism, thereby adapted to the needs to which one is confronted at various points in life.

The mediator, animated by intention, which differs from culture to culture and from situation to situation, looks for an interaction to produce in the mediatee opportunities for mediation. There is an active and intentioned search for those characteristics which are most needed for a quality of life and an advancement toward them. Thus there is an essential integration, as intentionality orients the search, shaping modifiability through the process of transcendence which makes the products of the interaction generalized and transferable, and then meaningfully adapted to a variety of situations and meanings.

These first three parameters of MLE ensure the universal phenomenon of modifiability. The flexibility and modifiability of human beings is found in all societies, observed as the culture is mediated to the next generation. This is the process of cultural transmission. MLE is thus both universal to the process of transmission, and specific to the particular aspects and dimensions of the culture to be transmitted. MLE contributes to the latter aspect through at least nine other parameters that are more responsible for the diversification of the human being. Despite common characteristics, people act and exist in very diverse ways.

The common element in all humanity is modifiability, but diversity makes humanity rich in forms of life, thought, expression, art, and technology. Thus, the mediation of regulation of behavior (as one example of the remaining "situational" parameters) is involved in the way the individual responds to changes in the internal or external environment, and the adaptation of behavior to these changes. The various other parameters such as the mediation of feelings of competence; the seeking, setting, and achieving of goals; the mediation of challenge, novelty and complexity; the mediation of an awareness of the capacity to change, and others (which will be addressed in the various contributions to this volume) are mediated differently in various cultures. Here, the expression of individual differences in the mediation reflects the particular needs of the cultural context in which the mediation is offered, and an assessment of both the immediate needs of the mediatee as well as the more remote and far reaching needs (goals, objectives, expectations) of the society.

Thus, these parameters reflect diversity and produce diversity. Differences in rates and rhythm of development can only be fully explained by the sociocultural ontogeny acting as a determinant of development. Such development is affected by the process dynamic of MLE, as it is implemented and experienced, and as it interfaces with the biological system - affecting and being affected by it.

The various presentations in this book bring interesting dimensions reflecting the meaning of MLE, in a diversity of cognitive and other situations leading to modifiability. MLE is thus viewed as a necessary ingredient of the many novel and complex situations encountered by humanity.

In this foreword to this important work, we would like to dwell on an aspect of MLE which has been briefly raised by Gaston Paravy. It is the concept of responsibility which he has considered in relation to MLE and the pedagogics of mediation. MLE is generated by a need of the mediator, experienced in a more or less conscious way, to see oneself continued by the mediatee to see one's existence prolonged and continued in its spiritual characteristics. We see here how the two ontogenies - the biological and the sociocultural, the first of which assures physical continuity via the chromosomes while looking for a parallel way to ensure the sociocultural, spiritual existence through the MLE.

MLE is therefore a response to the need for self preservation, which is also responsible for the emotional, affective relationship which the mediator has toward his or her progeny who is mediated. In this sense MLE generates bonding and love, no less than it is generated and sustained by the love and bonding with the mediatee. Observing parents and the way they react when there is a feeling of discontinuity in the thinking and behavior of their children, gives an illustration of the origins of the need for a propensity to assure continuity through MLE. While cultural transmission is meant to ensure preservation of the past, the instruments and the effects of cultural mediation generates modifiability which leads to the effects of transformability and changeability of the individual, and yet has the potential to ensure constancy despite changes.

The two antagonistic needs which are prominent in the human being, notably the need to exist, which becomes possible only by preserving our identity, is reflected in the need to be today what I was yesterday, and to be tomorrow what I am today. This is opposed by the need to live, which is equated with change and transformation. It is MLE which on the one hand equips the individual with the tools for modifiability and flexibility as required by the need to live, and on the other provides the continuity of experience reflected in the cultural transmission that offers the individual a sense of constancy and identity. Thus is met the need to preserve a sense of continuity beyond or within the experience of the changes which life produces. These are precisely the products of MLE.

There is great danger in our generation, incurred by the prevalence of change and discontinuity over the functions ensuring existence through the preservation of identity and constancy. This requires more than ever the involvement of a higher degree of responsibility on behalf of the makers of social policy, as well as our teachers and parents. The recognition and establishment of MLE, in the various roles we have suggested in this discussion, can insure constancy and continuity within the context of modifiability and change.

◆

Papers included in the present volume were initially presented at two international conferences held in Shoresh near Jerusalem in 1997 and 1998. The first of these conferences was on "Models of teacher training" , while the second one focused on "Educational advancement for youth at risk". The conferences were sponsored in part by the Ministry of Education and Culture and the Jewish Agency for Israel.

Part I of the volume provides a wide theoretical basis emphasizing the need for change in education and teacher training in the direction of greater emphasis on MLE. In her opening paper Madeleine Long reviews the current status of educational reform in the USA and warns about the signs of regression from cognitive approach back to rote learning. Gaston Paravy referring to the educational situation in France points out that MLE approach may play an important role in bringing back educators' responsibility that was somehow lost in the course of radical reforms that placed entire responsibility on students themselves. Alex Kozulin explores the points of correspondence and difference between Vygotsky's sociocultural theory of learning and the MLE theory. The question of how to turn a young teacher into a reflective practitioner dominates the contribution of Yaacov Rand and Rivca Reichenberg. Shmuel Rosen broadens the area of discussion to include the issue of training in industrial settings and demonstrates how the principles of MLE can lead to greater organizational flexibility.

Part II includes papers that focus on applications of MLE methodology in education, rehabilitation and counseling of youth at risk and provides a forum for programs that lie beyond the MLE methodology. James Kinard shows how the Instrumental Enrichment program can serve as a catalyzer of radical behavioral and cognitive changes in disadvantaged minority youth in the USA. Louis Falik demonstrates how the principles of MLE may provide additional tools for counseling psychologists working with youth at risk. Maria Adriana Beristain Mowbray examines the issue of gifted underachievers in the context of educational opportunities in Mexico. Belisario Guttierez and his colleagues outline their proposal for using Instrumental Enrichment as a tool for preparing students for efficient study of university level physics courses. Two Israeli programs that use methodology other than MLE, is Yael Shoshani's program for developing coping skills in Israeli adolescents and Mooli Lahad and Hava Ankor's program Basic PH - including belief, values, affect, social, imaginative, cognitive and physiological components.

Part III includes applied work based on MLE and IE with populations of special education students. Special techniques of the work with students suffering from neurological problems are outlined in the works of two groups of Italian contributors Morosini et al, and Dornini et al.

◆ The Endgame: Doing Reform in the Autumn of its Life

Madeleine J. Long

Goals:

- To provide a picture of conditions that engender failure
- To propose a solution for endemic problems of failure
- To introduce the process of systemic school reform
- To increase learning through IE for students at risk of failure
- To initiate cooperative and collaborative international relationships

This is Almost the Endgame!

It has been almost fifteen years since the publication of "A Nation at Risk," the Carnegie Commission Report that warned the United States' K-12 educational system could not continue on its present course. Since that time education has worked its way into the headlines of major city newspapers and emerged as a significant campaign issue for leading politicians, including U.S. President, Bill Clinton. There are National Standards in teaching, learning, and evaluation for most of the major curriculum areas as well as a number of creative challenges to the current system of public schooling, like Charter Schools, privately financed schools, and a voucher system that permits a certain modicum of choice to parents and extended families regarding the education of their children.

Advances have also been made regarding increased student learning, presumably the goal to which all change is aimed. For one thing, students have become the focus of reform efforts for which success is measured in terms of what students know and can do. In many places, standards have been raised for ALL students and among students from historically underrepresented groups improvement has begun to emerge - albeit at an unacceptably slow pace. Assessment and evaluation now include alternative performance tools and rubrics that go well beyond the traditional norm-referenced examinations that so greatly delimit the arena students have available in which to "prove" what they know. Policies, reflected in changing graduation standards, human resource development, altered school structures, and budget allocations, have begun to emerge as well.

Certain fundamental changes are occurring that are neither good nor bad in themselves, but are sufficiently different and provocative to warrant watching. I have in mind: the growing tendency for state and city "takeovers" of education; the appointment of non-school people in the role of Chief Academic Officer; (District Attorneys, business executives, etc.) sea changes in approaches to bilingual education; and aforementioned changes in the nature of public schooling.

Why, Then, the Endgame?

The backlash has already set in, and appears especially strident in the case of the many challenges to public education and to the future of student support that has benefited students from backgrounds of diversity and economic poverty. A most recent headline indicated the large numbers of colleges and universities rapidly moving away from scholarships that permit all students to secure higher education regardless of their economic conditions toward those that are awarded for merit only. At the K-12 level, the movement to privately supported schools is seen by many simply as flight from the public schools. The stress on test scores, coupled with higher standards, is most definitely viewed as a threat to those students whose preparation has been weak in the past and whose families are not able to provide the support typical of that supplied by middle and upper class families.

European researchers' indicate similar trends. Throughout European societies, between ten to twenty percent of children drop out of secondary school; almost sixty percent of this group is destined for a life of unemployment. Mathematics and science, which were the front runners in the development of standards and new and innovative curricula, are often the targets of attack both from within these disciplines and outside of them. And the story continues! Many educators and politicians alike believe that the window is closing on this round of reform. They also believe that if success is not the end product this time, it will be a long time before a window opens again.

The current state of technology, knowledge proliferation, and economic conditions renders matters more critical.

The unprecedented growth in automation and technology in the latter half of the 20th century has radically transformed almost every sphere of developed, free-market countries. Within the U.S., this growth produced once revolutionary changes that now seem almost commonplace – from the use of Automated Teller Machines and magnetic resonance imagining for diagnosing health disorders, to the use of advanced radar systems coupled with satellite technology to produce extremely accurate weather forecasts, to communication by electronic mail to every corner of the globe. In fact, the infrastructure provided by the global telecommunications system, which includes the Internet, earth-orbiting satellites, and fiber optic cable, makes possible a good many of our daily activities. As technology transforms the essential character of the economies of free-market nations, and simultaneously alters the ways in which we organize and retrieve knowledge, what and how we think and value, and how we live, learn and play, it also radically alters the skills and talents that workers require to compete in an increasingly knowledge-based, global economy.

Unlike the farmers and domestic servants who dominated the workforce at the turn of the twentieth century, and who were retrained and retained to accommodate the factory model, today's "blue collar" workers face extinction, to be replaced by technologists, people who work in an information age both with their hands and with theoretical knowledge. This thesis, put forward by Peter Drucker, the noted labor historian in "The Age of Social Transformation," claims that the biggest casualties of the work force shift will be displaced workers who, unlike displaced farmers and domestic servants, lack the knowledge and skills as well as the values and beliefs necessary to participate in the information-knowledge society.

In the information-knowledge society, which has characterized the last decade of this century, education increasingly becomes the greatest determinant of job access and social position, a belief echoed by America's global counterparts. Internationalism and new technologies make our societies move faster than ever, and, as a result, dropping out has more severe consequences than it has ever had. Access back in gets increasingly difficult as matters become more complex. We also live in societies that are even more split between rich and poor, and those that have knowledge and those that do not.

According to Drucker, "the majority of new jobs require qualifications industrial workers do not have and are not easily able to acquire." He has claimed that acquiring the necessary qualifications are dependent upon: extensive formal education; acquisition and application of theoretical knowledge; well developed analytical skills; a different approach to work; a different mind set; ability to learn how to learn; and continuous learning that permits rapid acquisition of new specializations. For all of us present at this conference, Mediated Learning and the Instrumental Enrichment (IE) Program together constitute an approach that can bring about educational improvement. Notice the relationship between what Drucker has identified as necessary for success and the Instrumental Enrichment goals. They have been juxtaposed to underscore points of consequence.

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Drucker's Necessary Qualifications

- Extensive formal education
- Acquisition and application of theoretical knowledge and well-developed analytical skills
- A different approach to work
- A different mind set
- Ability to learn how to learn
- Continuous learning that permits rapid acquisition of new specializations

IE Goals

- Correcting thinking patterns that impair learning
- Motivating students to solve problems
- Making thinking automatic, consistent, and permanent
- Developing insight and understanding of students thought processes
- Changing students from passive to active learners and generators of information

The Minority Situation – Another Exacerbation

Different countries have different minority groups, but whoever they are, they generally suffer from the same neglect and poverty. In the United States, minority groups most at risk of failure are African Americans, Hispanics, and Native Americans. The Children's Defense Fund has provided some extraordinary data that underscores the urgency for intelligent, purposeful, and research-guided action in regard to these groups.

- Homicide is the leading cause of death among five and fourteen year olds; the second leading cause of death of African American children aged one through four.
- A gun kills a child every two hours, the equivalent to a classroom of children every two days.
- In twenty-five years, approximately 800,000 children will die from guns and 500,000 by other violent means. This is three and one-half times the number of Americans killed in all twentieth century wars.
- Children are raising themselves as books and toys are being replaced by guns.
- More college age African Americans are in prison than in college dormitories.
- African American women have one in 21,000 chances of getting a Ph.D. in mathematics or science.
- One in five African American women have babies and one in two drop out of school.

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Data on Hispanic Americans is equally disturbing.

- Nearly one in five Hispanics between the ages of sixteen and twenty-four left school without either a high school diploma or an alternative certificate.
- While accounting for fifty-six percent of all U.S. immigrants, Hispanics account for nearly ninety percent of all immigrant dropouts.
- Today's dropout rate for Hispanics is two and one-half times the rate for African Americans and three and one-half times the rate for white, non-Hispanics.

Violence and Poverty are Neither Genetic nor Inevitable

There are those who help to create conditions that make it almost impossible for some groups to succeed. To those who need the best our educational system has to offer, we give: the least well-trained teachers; the lowest level curriculum; the oldest books; the least instructional time; our lowest expectations; and inappropriate assessments. And, too often minority students are treated as if they are invisible, a condition that Ralph Ellison discusses in his novel, *The Invisible Man.*

> I am an invisible man. No, I am not a spook, like those who haunted Edgar Allan Poe; nor am I one of your Hollywood-movie ectoplasms. I am a man of substance, of flesh and bone, fiber and liquids—and I might even be said to possess a mind. I am invisible, understand, simply because people refuse to see me, like the bodiless heads you see sometimes in circus sideshows, it is as though I have been surrounded by mirrors of hard, distorting glass. When they approach me, they only see my surroundings, themselves, or figments of their imagination - indeed, everything and anything except me. People refuse to see me. (Ralph Ellison, Invisible Man, 1952)

Students must be seen before they can be helped. They must be recognized, understood, respected, and cared for!

From such a situation, a technological, knowledge-based society coupled with extreme poverty and prejudice, there emerges a most significant challenge, the crucial need to ensure an appropriate education for **ALL** members of society, especially those groups that have been historically denied access to critical knowledge, skills and resources. Clearly, more than ever before, schools become the indispensable agents for and instrumental to producing a citizenry, all of whom are qualified to enter into and be successful within "an economic order in which knowledge, not labor or raw material, or capital, is the key resource."

If the children of poverty, a growing percentage of the population, continue to live out the meanness, futility, mistakes, and lack of opportunity to which contemporary society has sentenced them, every facet of society will lose - and every individual will suffer. The gap that persists between the poor and the economically secure, as well as between majority and minority students, must be narrowed.

But another gap exists, one born of the same circumstances, and one that must also be narrowed. This gap results from the disjunction between the ideal and the real, between what is and what ought to be. It is particularly destructive because it often allows us to concentrate on what we want while ignoring existing realities.

Another Gap...

What Ought To Be:

- ⊙ National Standards
- ⊙ Standards-Based Curriculum
- ⊙ 8th Grade Students
- ⊙ Teachers of 8th Grade Students

The Reality of Many Urban Classrooms:

- ⊙ Students performing at the 3rd grade level
- ⊙ Students with low confidence
- ⊙ Teachers with insufficient background in mathematics and science
- ⊙ Teachers with little confidence in students ' ability to learn higher order concepts
- ⊙ Inappropriate assessment tools

How do we close it?

To close both gaps, we must ask why some fail and why some fail more than others. In a sense, educators must learn to behave like scientists, digging out root causes prior to determining treatments and further actions. A solution cannot be prescribed unless causes and problems are understood.

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The following are frequently cited as conditions which frequently result in school failure, failure characterized by dropouts, poor attendance, increased behavioral problems, violence, truancy, and impulsiveness.

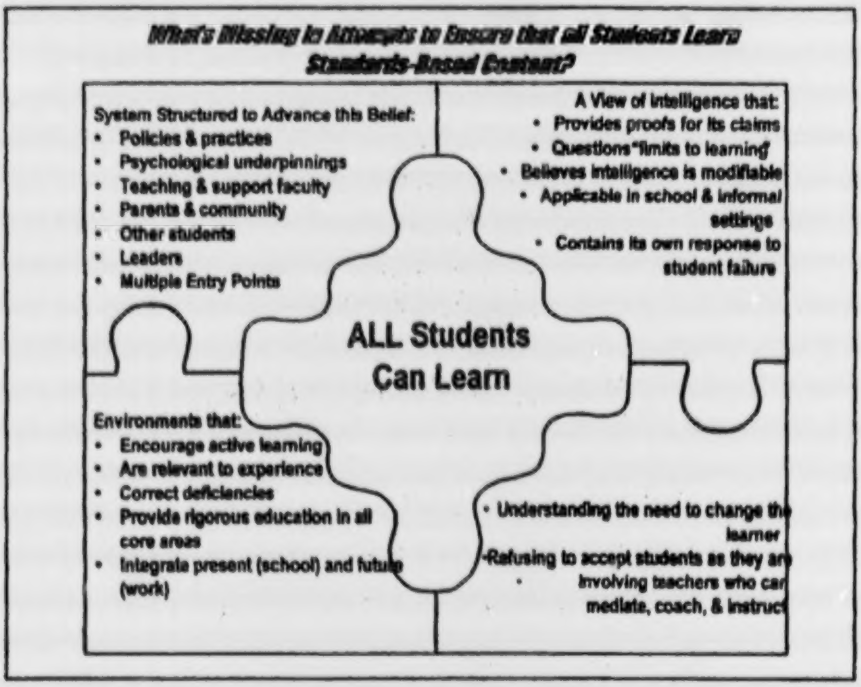
- Enveloping circumstances and conditions: poverty, crime, drugs, poor living conditions.
- Lack of a nuclear family and support structures.
- Absence of cultural transmission.
- Cultural gaps and ensuing misunderstandings.
- Unfamiliarity with the dominant language.
- Lack of belief, wide spread and endemic, in the ability of many students to learn and succeed.
- Absence of cognitive skills.
- Lack of coherent plans and strategies.
- Absence of competition.
- Inexperienced, poorly educated teachers and high turn over.
- Insufficient expenditures; poorly equipped schools.
- Insufficient knowledge of what works - and why.
- The condition of "invisibility."
- The quest for quick, uncomplicated fixes.

What Needs to Change

- ✍ What happens in classrooms. What we expect students to know and be able to do
- ✍ The demands we make upon students
- ✍ The tools we use to learn and teach
- ✍ Assessment of student performance
- ✍ How we prepare teachers
- ✍ How we support practices
- ✍ Accountability
- ✍ The role of external partners

To date, the picture is not a pretty one. Again, like scientists, we must ask what forces can be controlled and who can control them as we strive to discover and support viable solutions. As this is done, it is important to identify what is within the prerogative of the school so that efforts can be used wisely, judiciously, and efficiently. We must ask what needs to change in schools if student learning is to improve meaningfully.

What has been missing in attempts to ensure that all students learn standards-based content must also be identified. Clearly, the students must be located at the center of this quest for improvement, but what else must be factored in? What pieces of the puzzle are missing? How can they be fitted together to achieve the goal of a society in which all students learn that which is necessary, sufficient, and substantive?


What's Missing in Attempts to Ensure that all Students Learn Standards-Based Content?

System Structured to Advance this Belief:
• Policies & practices
• Psychological underpinnings
• Teaching & support faculty
• Parents & community
• Other students
• Leaders
• Multiple Entry Points
A View of intelligence that:
• Provides proofs for its claims
• Questions "limits to learning"
• Believes intelligence is modifiable
• Applicable in school & informal settings
• Contains its own response to student failure
ALL Students Can Learn
Environments that:
• Encourage active learning
• Are relevant to experience
• Correct deficiencies
• Provide rigorous education in all core areas
• Integrate present (school) and futu (work)
• Understanding the need to change th learner
-Refusing to accept students as they ar
• Involving teachers who ca mediate, coach, & instruct

Rather than chronicling failure by ethnicity or economic status, let us examine the kinds of difficulties students commonly experience when attempting to master subjects like mathematics, science, and language arts. As seen by Reuven Feuerstein, typical problems for students who have difficulty learning include: 1. impulsiveness; 2. egocentricity; 3. lack of motivation; 4. failure to plan actions and responses; 5. episodic thinking and behavior (doesn't believe in the future); 6. inaccuracy; 7. non inclusiveness; 8. not goal oriented; 9. tendency to abandon difficult tasks; 10. not logical; 11. inability to see cause and effect; and 12. inability to

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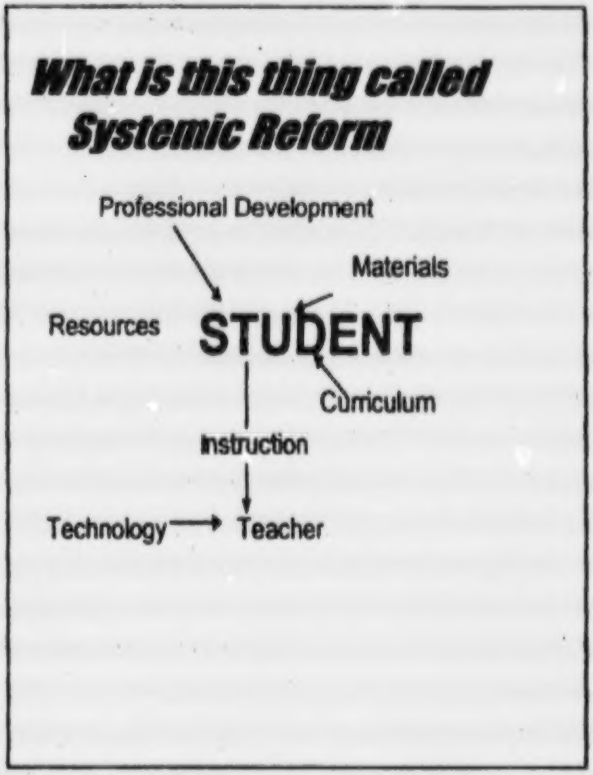
differentiate. Whatever the problems, failure to correct them will result in failure to succeed in school.

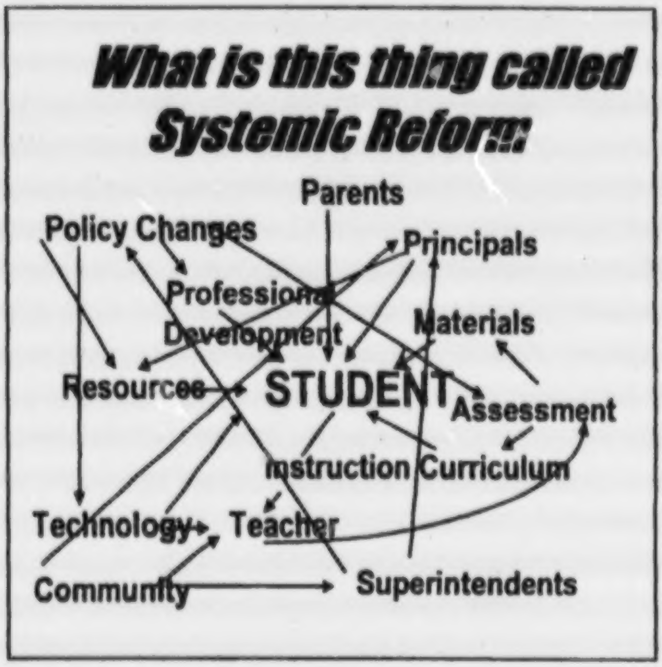
One Solution: A Systemic Approach to Instrumental Enrichment & The Mediated Learning Experience

Systemic reform has been defined as fundamental, comprehensive, and coordinated changes made within systems on the systems' essential components. It occurs when all those essential elements are engaged and operating in concert; one cannot attend only to selected elements and still succeed. When it works, it produces a synergy that makes it almost impossible to predict the behavior of the system by referring to the behavior of its individual parts. When it works, it also makes it harder to undo what has already been done!



Systemic reform is an approach, a particular way of doing business, but by itself the mere act of doing it does not ensure a good outcome, or a moral one, or one in line with particular standards or goals. Put differently, systemic reform is not an end-in-itself. It is, rather, a process for helping to ensure that goals are reached in a way that disallows the reformed system from ever again returning to its previous form. It is a process that enables lasting change.

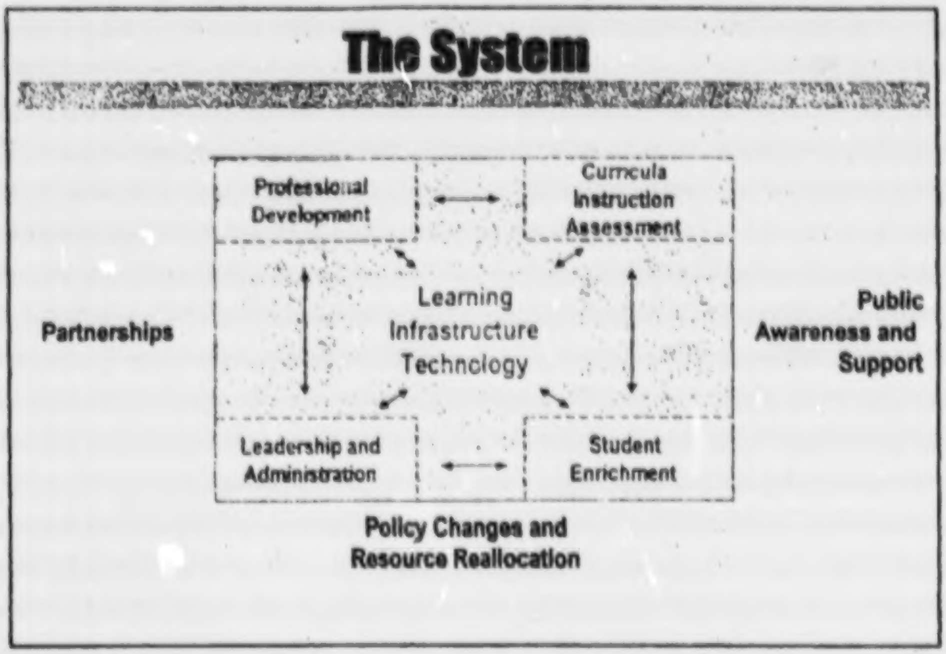
Strategic planning is normally associated with systemic reform, oftentimes confused with it. It is a process of systematically evaluating the nature of the enterprise, defining its short and long-term objectives, identifying quantifiable and qualitative goals, developing approaches to reach them, and allocating resources to carry out these strategies. Strategic planning deals with systems that might look like the one below:


What is this thing called Systemic Reform?
Parents
Policy Changes
Principals
Professional Development
Materials
Resources
STUDENT
Assessment
Instruction
Curriculum
Technology
Teacher
Community
Superintendents

Strategic planning begins by addressing questions like: Where are we today? Where do we want to be? How do we get there? How will we know that we have gotten there? And what must be altered and reconfigured to get us there? It is a process whereby people make decisions based on an established and agreed upon vision about intended future outcomes, how outcomes are to be accomplished, and how success is measured and evaluated. A strategic planning model should: 1.establish a vision; 2.analyze the status quo; 3. set goal and objectives; 4. determine key participants; 5. assign roles and responsibilities; 6. create an implementation plan; 7. determine methods to accomplish the goals and objectives; 8. consider appropriate existing programs; 9. develop a Time Line; 10. establish benchmarks and outcome measures; 11. analyze cost factors; and 12. design/adapt assessment and evaluation tools.

Those who deal with systemic reform have identified those elements considered to be the most critical parts of the educational system. From many perspectives, the most critical elements include:

- Leadership and Teaching
- Policies and practices
- Curriculum, assessment, professional development
- Support Systems
- Parents, other community members, and external partnerships
- Existing and necessary resources (budget and funding)
- Public relations and engagement
- Evaluation


The System
Professional Development
Curricula Instruction Assessment
Learning Infrastructure Technology
Partnerships
Public Awareness and Support
Leadership and Administration
Student Enrichment
Policy Changes and Resource Reallocation

The task today is to look at three closely connected elements of a system – curriculum, assessment and professional development, and student support. The focus is clearly on helping students to learn and the presentation of a program, "Instrumental Enrichment," that has a high probability of success when used with students in an academic setting. Two equally important issues are involved: the programs and approaches selected and the manner in which those programs are implemented. The selection of programs should be done carefully, always keeping in the forefront the existential situation that resides at the heart of the conditions to be altered. When attempting to determine which particular programs to employ, the following criteria will prove useful:

- Belief in all students' ability to learn
- Coherent and comprehensive vision
- Accessibility and mutual entry points
- Standards-based content
- Professional development schema
- Transferability of skills
- Embedded assessments
- Inclusiveness (Learning Modalities)
- Evidence that it works (research–based)
- Affordability

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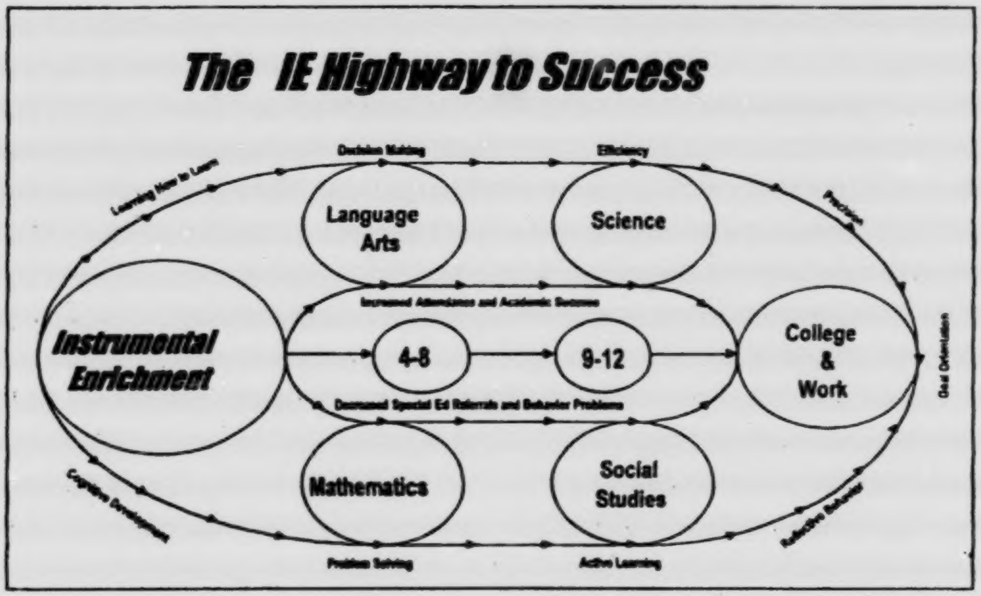
Instrumental Enrichment

The audience is learned when it comes to its understanding of Instrumental Enrichment (IE) and the Mediated Learning Experience (MLE). For me, it is most important that, together, IE and MLE support the belief that all students can learn and that their learning problems can be eliminated through the development of certain cognitive abilities. We need IE because too few parents and teachers believe in the capacity of students to learn or know how to help them learn. IE begins with a **belief** in children, in the fact that their behavior is dynamic and modifiable. IE 1. addresses grades four to adulthood; 2. covers all facets of learning; 3. provides analysis and assessment; 4. provides tools to ameliorate learning and behavioral problems; 5. includes professional development; and 6. shows results that last over time. It has been successful in dealing with most curriculum areas and many age groups.



The IE Highway to Success

Decision Making
Efficiency
Learning How to Learn
Precision
Language Arts
Science
Increased Attendance and Academic Success
Instrumental Enrichment
4-8
9-12
College & Work
Goal Orientation
Decreased Special Ed Referrals and Behavior Problems
Mathematics
Social Studies
Cognitive Development
Reflective Behavior
Problem Solving
Active Learning

The concerns and areas addressed by the IE program are very similar to those enumerated in the National Council of Teachers of Mathematics' (NCTM) Curriculum and Evaluation Standards and the National Academy of Sciences' (NAS) National Science Education Standards. IE is adaptable in all curriculum areas, especially in the areas of mathematics and science.

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IE AND OTHER CURRICULUM AREAS

IE	SCIENCE	MATHEMATICS
• Record, analyze, organize and infer from data • Represent information in various models • Orientation in space and time • Compare, classify and plan • Formulate and test hypothesis • Reason inductively and deductively • Reason from cause to effect • Communicate clearly and precisely	• **GET IT:** gather, identify, compare, contrast, measure • **MANIPULATE:** arrange, classify. order, sequence, clarify • **INTERPRET:** draw conclusions, extrapolate, infer, explain, predict • **APPLY:** generalize, hypothesize, transfer, infer, relate to real life	• Employ logic and reason • Use evidence not "sole source" • Reason over memory • Conjecture, invent, and problem solve • Learn by applying in new situations • Base instructional decisions on analysis of student learning • Encourage lifelong learning • Connect and communicate mathematics to other areas • Focus on student thinking • Use assessment for teaching

We need IE because too many kids fail; too many are too far behind.

- Old ways haven't worked sufficiently well.
- Interventions tend to ignore individual problems.
- Interventions have been stopgap at best.
- A continued focus on remediation courses denies the richness of learning to those who need more, not less, of what makes education engaging and exciting.

Results for Students and Teachers

IE's belief in the ability of all students to learn and the need to develop particular cognitive abilities if this belief is to become reality are very similar to what has been enumerated in the mathematics and science standards. Development of the cognitive abilities through the process Feuerstein refers to as "IE and the Mediated Learning Experience" (MLE) can help pave the way for successful implementation of standards-based mathematics and science curriculum. This process provides analysis, assessment, and tools to ameliorate learning and behavioral problems as well as a thorough and logical approach to professional development.

In excess of 1,500 papers and studies written about IE testify to its success, especially to the fact that behavior and learning can be modified over time, and that positive results extend well beyond program completion. Evidence from a meta-study done in Israel (Figure 1) and from a self study done by the Taunton, Massachusetts Public Schools (Figures 2, 3, and 4) are indicative of the program's success. Both studies indicate that student learning is increased by exposure to IE and that increases continue well beyond formal exposure to the program. In the case of Taunton, significant improvement is demonstrated on state achievement tests in mathematics, science, and social studies. A different, more idiosyncratic approach will be made available to you by way of participants' comments.

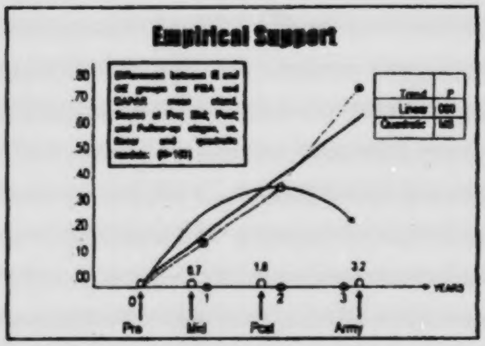

FIGURE 1
ISRAEL – LONGITUDINAL STUDY

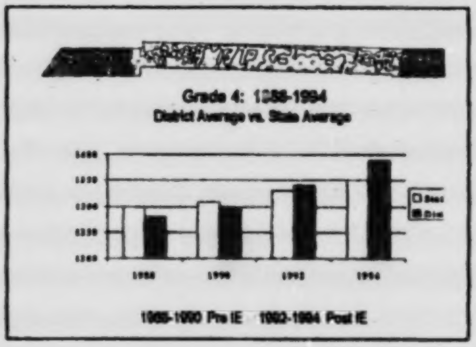

FIGURE 2
TAUNTON, MA PUBLIC SCHOOLS

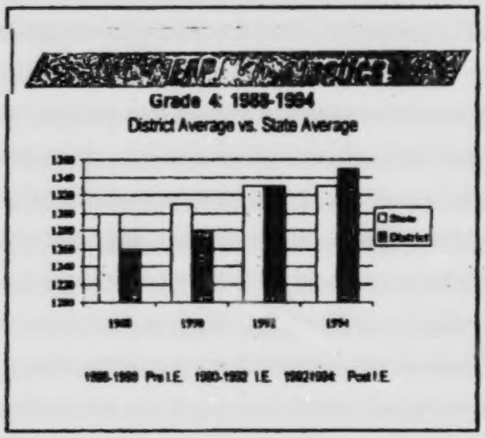

FIGURE 3
TAUNTON, MA PUBLIC SCHOOLS

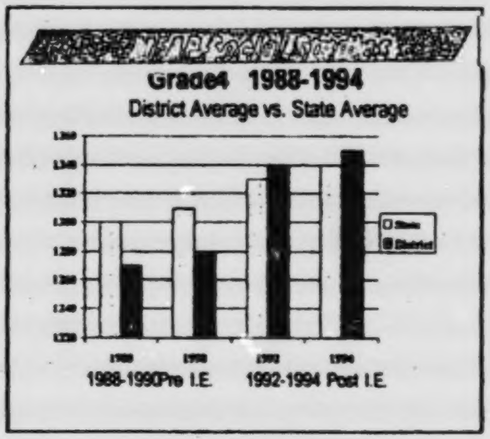

FIGURE 4
TAUNTON, MA PUBLIC SCHOOLS

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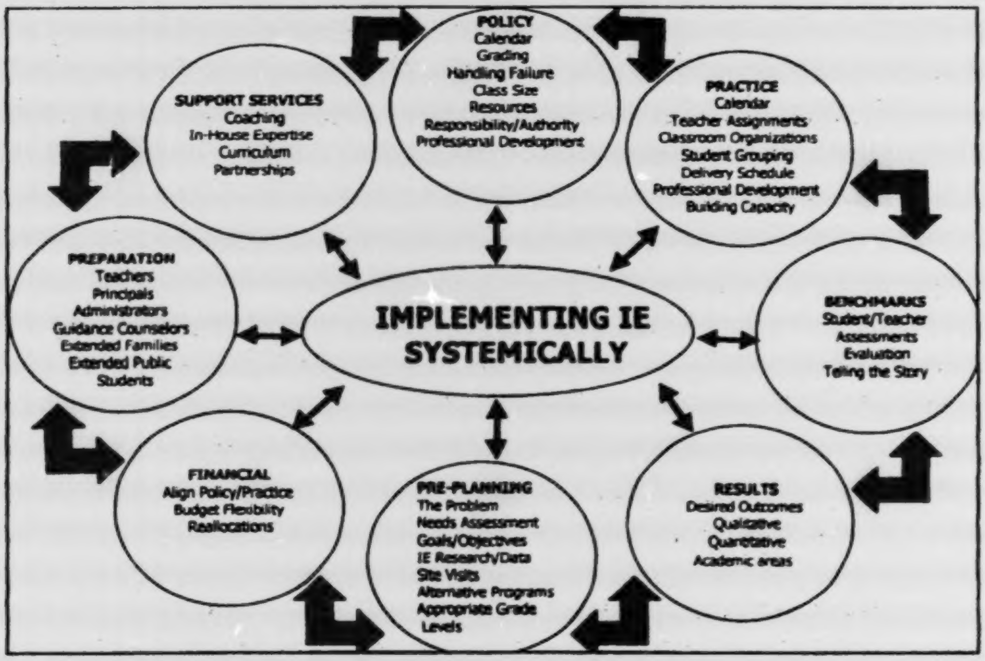
Back to Systemic Reform

It has been claimed that:

- Learning gaps are real and significant.
- A disproportionate number of minorities find themselves at the low end of the gap.
- All people can learn under appropriate circumstances.
- IE and MLE have proved effective when used with students who experience difficulties learning.

If, in fact, this is perceived to be the case, then it would appear to be the appropriate time to take action and to implement IE/MLE on a large scale. Such implementation will not be easy. If it is not accomplished systemically, it will not take hold and strong starts will quickly dissipate themselves. I present, for your consideration and analysis, one model of a systemic implementation of IE. Consider it, critique it, and alter it. Use it to help you understand your own system and how change will best work with it.


POLICY
Calendar
Grading
Handling Failure
Class Size
Resources
Responsibility/Authority
Professional Development
SUPPORT SERVICES
Coaching
In-House Expertise
Curriculum
Partnerships
PRACTICE
Calendar
Teacher Assignments
Classroom Organizations
Student Grouping
Delivery Schedule
Professional Development
Building Capacity
PREPARATION
Teachers
Principals
Administrators
Guidance Counselors
Extended Families
Extended Public
Students
IMPLEMENTING IE SYSTEMICALLY
BENCHMARKS
Student/Teacher
Assessments
Evaluation
Telling the Story
FINANCIAL
Align Policy/Practice
Budget Flexibility
Reallocations
PRE-PLANNING
The Problem
Needs Assessment
Goals/Objectives
IE Research/Data
Site Visits
Alternative Programs
Appropriate Grade Levels
RESULTS
Desired Outcomes
Qualitative
Quantitative
Academic areas

Working Together Internationally

Those of us present at this Conference represent an international audience interested in helping at-risk students succeed. Separately, and together, we face a number of serious conditions that threaten the well-being of civilization. Among these conditions are included:

International Education Problems

- Low achievement
    - Unable to perceive value in learning
    - Not socially engaged
    - Lacks control over their lives
    - "Short view" of own personal worth
- Low quality of schooling
- Differences between the information "rich" and "poor"
- Lack of economic resources
- Limited linkages between educational systems and labor markets
- Lack of attention to the conditions of teachers
- Lack of accountability by educational bureaucracy
- Gender Inequality

Let us vow to work together as colleagues, across ethnic, political, economic, and social divides, to narrow learning gaps and improve academic and social conditions for all students. Let us vow to return to Shoresh next year with a litany of accomplishments that can be shared and improved upon. Let us vow to help Reuven Feuerstein demonstrate to people all over the world that ALL students can learn. And let us all do our share to make certain that they will learn.

IE Comments from the Field

Middle School Students

- "Homework was easier to do using the strategy you taught us for breaking it into parts" (*About multiple operations in mathematics)*.

- "Learning to restrain my impulsiveness has sure kept me out of trouble this year."

- "It sure is easier for me to write paragraphs when I take the time to make a plan and know where I am going with my words."

- "Please don't drop me from school. I like this program. Let me apologize to the teacher" (*A student from a discipline referral).*
- "Why can't regular school be like this?"
- "You're ill. Can't someone else do that?" "No, that's my job. I'm the only one who knows how to do that. I have to go help so that we can get finished."

Parents/Teachers

- "My daughter hasn't been interested in school and she didn't do very well last year, but she has been anxious to come this summer. She says that this school is different and makes more sense to her." *(a parent)*
- "In mathematics, the students are using the strategies to solve multiple operation problems. They have gone from a position of looking at a problem and not even attempting it, to actually using the IE vocabulary and breaking the task down into smaller parts. I observe them stopping and taking the time to figure things out versus not trying."
- "We have recently been working very hard on writing skills. This is one of the weakest areas for my students. IE has been valuable. Although I know that they have been taught process writing skills, I don't see them utilized comfortably. By using the vocabulary from the IE program and bridging the experiences to writing, I am seeing better observation of thought and less 'rambling' on paper. Taking the time to stop and think, develop a plan, and get prepared for accuracy really is helping them across the board in school. IE has also been an extremely useful tool when dealing with social issues and personal responsibility."
- "In planning a camping experience for the program, the students had initially been told that they could take their bikes with them. This was later changed. In his disappointment, a student said to me, "Why did you say that we could and now we can't? You are always telling us to stop and think, to have a plan. Why didn't you stop and think before you told us we could?" *(Middle School Teacher)*

- "I used the early challenges to work with my students on planning skills. It is great to watch them now doing more difficult tasks and saying that they are actually easier. Our dialogue in class addresses this experience often."

- "What is really exciting is how the students use the FIE structure and philosophy themselves! I have heard students use concepts from FIE in other contexts, and I have also heard them quote phrases in working with each other. At times I grin, knowing that they wouldn't have spoken or thought this way a few months ago."

- "I observe them [my students] stopping and taking time to figure things out versus simply 'not trying.'"

- "FIE has been an extremely useful tool when dealing with social issues and personal responsibility."

- "It's working, we are making progress. Many of the students are having success in school for the first time."

Faculty and Adult IE Students

- "Analytic Perception - This instrument assisted me in analyzing differences between situations by finding underlying problems within a problem."

- "A formal course in IE is probably the best approach to attract students to engineering." (*College professor)*

- "IE has helped me teach others to organize their thoughts - to think things through."

- "IE has helped me with my child's homework, has helped me at work."

- "IE has improved many areas of my life - being a better person, having the ability to make sound decisions, and taking responsibility for the decision made."

- "This class has helped me develop my cognitive functions to a high level. The class was also good for my self-confidence. I've been able to reduce my impulsiveness and stop and think things out utilizing my new acquired skills. This class has more applications in my life than I can write."

- "What I have observed from the men in the class is remarkable. Their whole outlook on life has changed for the better. It seems to me that they have a sense of urgency about getting started and succeeding in the goals they have set forth.

- "It has given me new light and hope where there was none."

- "My husband is in the IE class and I see a tremendous change in him. He cannot stop talking about the class and how he wants to start his own business. IE training has changed him so much that after this class he is going to take a business class."

- "The IE tasks were difficult because you need to do intense systematic searching to find what you need. The activities gave me a feeling of confidence in my skills because you have to look and find the whole picture before you can make a move. These tasks I feel fine tune the mind."

- "At work IE has enabled me to advance myself in new situations that arise during a particular project. I understand that each situation is different from others though they may have similarities and to keep in mind that hypothetical thought is important in all aspects of my life, home, work, and play."

◆ Responsibility and Educational Mediation

Gaston Paravy

The December 1995 strikes, society bound by restrictions, inefficient public services, an insecure and, more recently, a violent atmosphere in colleges and high schools have all combined to make youth and adults sit up and question the situation. Until recently, a "class-struggle" reflex made it easier to accuse the guilty. Today, however, each one of us feels obliged to answer for these collective phenomena. Does this mean that we have entered "the era of the responsible"[1] or "the era of responsibility"[2]? Whichever the case, responsibility appears to be "a sign of the times" and even hope for a solution for new social harmony. Once again, education and training lie at the heart of the issue.

A Return of Responsibility and Ethics

The pre-eminence of the unconscious over the conscious purported by certain supporters of psychoanalysis, philosophy of doubt and absurdity such as that of dialectic materialism, have resulted in obliterating the responsibility parameter in individual and group action. Likewise, a command of technology and production methods described as being scientific have relegated the concept to a back row position. In spite of the fact that morality lessons no longer feature in the school curriculum, teachers still continue to stress high-level thinking such as Saint Exupery's[3] maxims – the author of *Le Petit Prince* deemed responsibility to be the foundation of human dignity and solidarity. The forceful return of that notion of responsibility is manifested today in the urgent appeal for ethical rehabilitation emitted by scientific and medical researchers, industrialists and politicians. If the term "ethics" (from the Greek) today replaces the Latin concept of morality, this is undoubtedly because the latter, due to its excessive notion of duty, good and bad, etc., was too often portrayed under the guise of moralism and was upheld ever more forcefully in the name of reclaimed freedom. In the same movement that reintroduces ethics as a component of philosophical, political, social and economic thought, its indissociable corollary – responsibility – reappears in full force. Responsibility, which by its very nature, refers to the notion of others, **the Other Person to whom I must account for my words and my actions**. This is the original drama enacted by Cain who, in refusing to account for his brother Abel whom he had killed, escaped outside attention transcending himself: "Am I my brother's keeper?"[4]

If it is true that the *Shoah* (Holocaust) set off much reflection upon the responsibility of thinkers such as Hannah Arendt, Hans Jonas and Martin Buber, then the recently departed Emmanuel Levinas[5] is quite possibly the person who examined the approach of this concept most profoundly by basing the modern principle of responsibility on a particular inter-subjective relationship: "*From the minute another person looks at me I am responsible without even having to take responsibility for him; his responsibility is my duty. It is a responsibility which goes beyond what I do.*"[6] This postulate completely overturns relationships with others, urging each person to emerge from his solitude, indifference and seclusion. Levinas often mentions Dostoyevski's words: "*We are all guilty of everything, and I myself am the most guilty*",[7] because, according to him everyone has full responsibility "*as I answer for everyone else and for everything that others do, even for their responsibility*".[8]

The Unease of Irresponsibility

The task may appear insoluble in our society of frenzied individualism, and the resounding lawsuits held over the last few months, which incriminated politicians and company directors, stress the current unease of irresponsibility. *"No-one can say who is responsible for what, in our society. The so-called "decision-makers" decide nothing because in any given case there are dozens of overlaying and embroiled levels. It is never the politician, or the administrator, or the technician, or the financier who is responsible!"*[9]

Likewise, Tony Anatrella stresses the drift of educational irresponsibility of adults towards youngsters which marked the post-'68 period. *"All too often, to them (the adults) education was reduced to a relationship of negotiation with the youngsters and at times identification with them, so not to have to stand before them as adults and also because nobody really knew how a human being developed anymore."*[10] ... *"The role of an adult is decisive because, he is, above all a mediator (and not a negotiator) between the child and reality"*[11] In the same vein, Marguerite Lena stresses that "the shock-waves of the 1968 events ... shook the spiritual foundation of the act of transmission and in that context educational responsibility had to be rehabilitated".[12]

The return, in other words, the restoration of responsibility can clear the way for educational renewal towards which it is imperative to work.

Education Towards Responsibility: Mediation

The notion of responsibility, placed more specifically by Levinas, in the relation towards the Other Person, is the source of humanizing dynamics, which the person deploys beyond initially-felt restrictions. In learning, the problem of responsibility finds its point of application in the educational relation defined as mediation whereby the teacher and the pupil enter into a state of common creativity. It should be noted that when the concept of responsibility reemerges in social mediation theories, it applies not just in family frameworks and in the realms of business, health, law and city life, but also in training and education.

As J.F. Six stresses, mediation in pedagogy introduces a trilateral mode of relations which had been bilateral: "*there is the teacher who should be active and responsible, there is the pupil who should also be active and responsible and there is knowledge which is the bridge, the instrument, the knowledge to incite and integrate: like a tool and not a goal in its own right.*"[13]

J.F. Six, himself, defines mediation thus: "*fundamentally it is a sort of life-giving act which itself exists for itself thanks to a personified catalyst*"[14]: the educator is by nature Socratic for he allows: "*the human being to discover by himself the best parts of himself, intent and comprehension skills which he did not suspect he had.*"[15]

The compound "**responsibility-mediation**" only works in the approach of a person who is not just gaining knowledge but who is also a source of new knowledge of which he is the sole producer and the sole dispenser. With this educational approach in basic and more advanced schooling and in professional training we give right of speech to all those who were excluded by the rigid system of expertise. Responsible for someone else, the mediator humanizes the access to justice, knowledge, qualification, training, insertion and employment.

Preparatory discussions on the planned reform of Superior Training should include the parameter of **mediation as leverage for a renewal of personal and educational responsibility**. If it is completely legitimate for the function of the mediator to be professionalized[16], we would like to stress the necessity of mediation nurturing our educational practices. More and more teachers and specialized educators such as trainers of adults try to review and enrich their educational strategies along the lines of mediation: "*The concept of mediation appears today as one of the possible keys to the life of members of society, as one of the tools which could favor the integration of the deprived... in fact mediation is a means of reconciling viewpoints, of unsettling certitudes, of dissipating misunderstandings*"[17]. Here we would like to stress the prophecy in the educational thinking of the Israeli professor Reuven Feuerstein. He was the first to disseminate the concept of mediation which he defines as a quality of interaction, a new type of educational relation[18], within French educational circles. Bringing the individual back to himself by helping him to resituate his cultural identity, his relationship towards Others and towards his environment on the basis of his own personal history – does this not constitute a prerequisite of learning in general? Is this not the primary goal of continuous education, which a future law could reaffirm and render more efficient?

These perspectives constitute a period of expectation and hope for many teachers who are faced with people who have often lost hope for themselves and for their ability to train in a profession and find employment. By the same token Bernard Ginisty suggests recovering the initial inspiration of continuous education: the multi-dimensional development of the individual in a process of work and company renewal and the reestablishment of social relationships. "*Professional training, in the hands of social associates never ceases to conceal the task of continuous education, without which, according to the promoters of the 1971 law, it loses all meaning. In a society which experiences such a serious paradigm crisis, work on oneself, on one's representations, one's relations, becomes more fundamental than adapting to professions which are more and more transient. The place of continuous education is the key for the conjugation of new configurations between the passions of life and the reasons for existing.*"[19]

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[1] Alain Etchegoyen. *Le Temps des résponsables*, Paris, Julliard, 1993, 262 p.

[2] Fredéric Lenoir, *Le Temps de la résponsabilité*, postface de Paul Ricoeur, Paris, Fayard, 1990, 273 p. Cf. Aussi: sous la direction de Monette Vacquin, *La Résponsabilité, la condition de notre humanité*, Paris, Ed. Autrement, 1994, 287 p.

[3] A. de Saint Exupery. *"Etre homme, c'est précisement être résponsable, c'est connaître la bonté en face d'une misère qui ne semblait pas dependre de soi. C'est être fière d'une victoire que des camarades ont remportée. C'est sentir, en posant sa pierre que l'on contribue a batir le monde". (Terre des hommes). "Nul ne peut se sentir résponsable, et deséspéré" (Pilote de guerre). "Chacun est résponsable de tous. Chacun est seul résponsable. Chacun est seul résponsable de tous (Pilote de guerre) "Tu deviens résponsable pour toujours de ce que tu a apprivoisé" (Le Petit Prince).*

[4] Genesis IV, 9

[5] cf. Michel Constat and Nicolas Weil "Mort d'Emmanuel Levinas, philosophe de la difficile liberté, in *Le Monde* du 26/12/95, p. 18; Michel Crépu, "Emmanuel Levinas, l'homme de l'Autre, in *La Croix* du 27/12/95, p.7; Bernard Ginisty, "de l'urgence de lire Emmanuel Levinas", in *La Croix* du 31/10/96.

[6] Emmanuel Levinas, *Ethique et Infini*, p.92, Paris, Fayard, 1982.

[7] Dostoyevski, Les frères Karamazov, La Pléiade, p. 30.

[8] Emmanuel Levinas, *op. cit.*, p.95

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[9] Jacques Ellul, in Fredéric Lenoir, *Le temps de la résponsabilité*, Paris, Fayard, 1995, p.24.

[10] Tony Anatrella "Les effets d'une éducation" in *Etudes* no. 5 mai 1995, p. 627

[11] Tony Anatrella, Ibid. p. 621

[12] Marguerite Lena, *L'Esprit de l'Education*, Préface à la deuxième édition, Paris, Desclée, 1991, p.7

[13] Jean-François Six, *Dynamique de la médiation*, Paris, Desclée de Brouwer, 1995, p.81

[14] Jean-François Six, *Ibid.*, p.81

[15] Jean-François Six, *Ibid.*, p.81

[16] Cf. *La Charte et le Code de la Médiation* élaborées par le Centre National de la Médiation, J. F. Six, op. cit. pp. 265-280.

[17] Monique Lafont, Georges Chappaz in *Comprendre et Construire la Médiation*, Actes de l'Université d'Eté 1994, Université de Provence, CNDP-CRDP Marseille 1995, p.9.

[18] Cf. *Les Pédagogies de la Médiation, autour du PEI*, Préface de Guy Avanzini, Lyon, Chronique Sociale, 3eme édition, 1996, 210 p. et *Médiation éducative et éducabilité cognitive, autour du PEI*, préface de Gaston Paravy, postface de Guy Avanzini, Lyon, Chronique Sociale, 1996, 160 p. Un cycle de conférences sur le thème de la relation éducative se deroule depuis 1995 à Lyon dans le cadre de l'Association pour le Développement des Pédagogies de la Médiation (ADPM) et donnera lieu à la publication d'un troisième ouvrage sur ce thème en 1997.

[19] Bernard Ginisty, in Passions et Raisons Publiques, no.2, Lyon, Ed. Rhizome, Juin 1995, pp.90-91.

♦ Interface of Vygotskian & Mediated Learning Experience Paradigms in Teacher Training

Alex Kozulin

The comparative analysis of Vygotskian and MLE paradigms in teacher training inevitably involves a broader discussion of the learning process including the parameters of teacher, learning material, and student.

A modern trend in the theories of instruction and learning, to which both the Vygotskian and the Feuersteinian approaches belong, places emphasis on the constructive activity of the student, the cognitive-developmental appropriateness of material, and the involvement of the teacher in the design and implementation of classroom activities above and beyond a mere provision of information. Thus, before focusing on the preparation of teachers for their specific roles, it is imperative to offer a brief outline of Vygotskian and Feuersteinian notions of the learner and learning material.

For Vygotsky (1978; Vygotsky and Luria, 1993), a child is first and foremost a member of a particular socio-cultural group who appropriates learning tools characteristic of the group. Education in a broader sense is the process by which a novice acquires an individualized version of his or her group's culture. One aspect of this acquisition process that is particularly emphasized by Vygotsky is the role played by psychological tools. Psychological tools are those symbolic mediators (signs, symbols, formulae, texts, graphic organizers) that allow the individual to organize, restructure and control his or her "natural" functions of perception, attention, memory, communication, and problem solving. Appropriation, internalization and the use of psychological tools constitute the basis of human learning as distinct from that of animals. The notion of psychological tools provides a link between the social level of the transmission of culture and the individual level of learning and development. For example, such a tool as literacy on the one hand provides a means for transmitting cultural texts while on the other contributes to structural changes in individual cognitive processes (Olson, 1993).

The learning material represents the accumulated experience of mankind that is condensed and transformed for the need of transmitting it to the novice. Formal school-based education can be distinguished from informal practical education because the former presents knowledge in the form of "scientific" concepts while the latter operates with everyday notions (Vygotsky, 1986). Conceptual learning is by necessity a disciplinary one because it reflects a specific cultural-historical practice of formulating physical, biological, historical, linguistic and other concepts.

According to Vygotsky, educational process leads the child's cognitive development, but does not coincide with it. Higher cognitive functions depend on education for their development. At the same time, it would be erroneous to claim that development just follows learning as a shadow. Vygotsky argued that it is impossible to find the universal formula of the relationship between a study of a given subject and the child's development: "Each school subject has its own specific relation to the course of child development, a relation that varies as the child goes from one stage to another" (Vygotsky, 1978, p.91).

The student appears in Vygotsky's theory as an active learner whose mind is never a "tabula rasa". Even before formal education starts the child already has spontaneous notions of quantity, causality, time, space, and others. These notions should be taken into account when the child is introduced to formal mathematical, historical, or literary learning. Because of this emphasis on the spontaneous notions held by the child, Vygotsky's theory is often associated with the "constructivist" approach (Newman, Griffin, and Cole, 1989). It is important, however, to remember that Vygotsky never claimed that the student's construction of knowledge can be accomplished spontaneously or independently. The process of concept formation in the student occurs in the constant interaction between the student's spontaneous notions and systematic concepts introduced by teachers.

A somewhat similar interaction takes place between the student's maturational processes, and new opportunities created by learning. The maturational processes, including sensory-motor, hormonal, and affective processes do not cease to exist once formal learning starts, but enter into complex relationships with higher cognitive functions dependent on learning. Ontogenetic process is neither uniform nor monotonous, but full of crises that puncture the student's development.

Feuerstein's (1980; 1990) notion of a learner is anchored to the phenomenon of mediated learning experience as distinct from the experience of direct learning. According to Feuerstein, the child is exposed to two types of learning situations. The situation of direct learning includes an unmediated interaction between learning material and the child's mind. If the child's mind is ready to accept this material it will benefit from it. If, however, the child does not know how to accept the material, cannot identify its meaning, or does not know how to respond, the second type of learning, the mediated one, becomes crucially important. "The mediated learning experience can be defined as a quality of interaction between child and environment which depends on the activity of an initiated and intentioned adult who interposes him/herself between the child and the world. In the process of such mediation the adult selects and frames stimuli for the child, creates artificial schedules and sequences of stimuli, removes certain stimuli and makes the other stimuli more conspicuous... Mediated learning experiences are a very important condition for the development of the very unique human conditions of modifiability, or the capacity to benefit from exposure to stimuli in a more generalized way than is usually the case" (Feuerstein, 1991, p.26).

Not every interaction between the child, the adult and the learning material qualifies as a mediated learning interaction. Feuerstein (1990) provides a detailed list of universal and contextual criteria of mediated learning experience. At the center of Feuerstein's learning theory lies the problem of what happens when the type or amount of mediation is inappropriate for the child's needs. The condition caused by the lack of MLE is characterized as that of reduced cognitive modifiability. Thus, the role of learning materials is formulated in the context of this overall task of enhancing the student's cognitive modifiability through MLE producing interactions.

The goal of enhancing the student's cognitive modifiability dictates the content-free nature of learning materials developed by Feuerstein et al (1980). These materials, which together constitute the Instrumental Enrichment (IE) cognitive intervention program are deliberately detached from specific content subjects. Feuerstein et al (1994) argued that the acquisition of the most basic cognitive functions and strategies - that is the process of learning how to learn - does not require specific content materials: "When one deals with elementary cognitive functions that have not been established, for whatever reason, in the individual cognitive operations, then the issue of specificity is much less important" (p.32). In addition, Feuerstein presented a number of specific reasons for the content-free nature of IE program. The first is the resistance of the student who perceives content material as "information only" and is reluctant to engage in a broader study of cognitive principles embedded into this material. The second reason is the teacher's resistance to spending time allocated to teaching specific material or operations on instruction in more general thinking skills. The third reason is that the content material has its own logic - mathematical, geographic, literary, etc. - that does not necessarily coincide with the logic of acquisition of basic cognitive functions. Finally, there is the factor of failure previously experienced by the student in his or her confrontation with specific content material. As we will see later, the issue of content-free versus content-based nature of instruction constitutes one of the important points distinguishing Vygotskian and MLE paradigms.

The Vygotskian paradigm of teacher training is based on two presuppositions. The first is the presupposition regarding the relationship between instruction and development; the second is the notion of the Zone of Proximal Development (ZPD) as a "space" within which the instruction takes place. Vygotsky (1978) rejected a popular belief, associated with Piagetian theory, that instruction should follow the child's cognitive development. He claimed that, to the contrary, instruction and learning constitute an important factor, "a motor" of child development. Thus, from the Vygotskian point of view, learning and development are just two aspects of one and the same process of "developing education". As a result, instead of conceiving instruction as a mere provision of information and rules to be processed by already existent psychological functions, Vygotsky suggested that instruction and learning are responsible for the development of higher psychological functions which are absent in the "natural" cognitive endowment of the child. Teacher training should therefore be not only subject-oriented but also development-oriented. The educator should be aware of the current cognitive status of the child, and of those cognitive changes that can and should be produced with the help of instructional process.

To make education truly "developing", instruction should be carried on in what Vygotsky (1978; 1986) defined as the Zone of Proximal Development (ZPD). The ZPD constitutes an "area" within which the child's functions are in a state of development. Functions and concepts situated "below" ZPD have already been formed and the child can use them independently. "Above" ZPD, there are no relevant functions that can be developed through instruction at a given moment in the child's development. "Within" the ZPD functions exist in their nascent state. They cannot be displayed by the child him or herself, because they have not yet been formed, but if the child receives help from the adult or from the more competent peer these functions can be displayed as an outcome of such a cooperative action. One of the primary roles of the teacher, assisted by psychologists, is to identify the ZPD of each student and to attune the instruction in such a way that the student's learning takes place within this zone. Simultaneously, the teacher works on extending the "upper" limit of the child's ZPD.

The notion of ZPD constitutes an importance aspect of interface between Vygotskian theory and the concept of learning potential or propensity proposed by Feuerstein et al (1979; 1991). Actually, a number of psychologists who use learning potential assessment procedures formulated by Feuerstein conceptualize them in terms of ZPD (Lidz 1987; 1995). In both cases, the notion of cognitive assessment is firmly anchored to the goal of educational intervention and change in child's performance.

ZPD oriented instruction has two major forms. One of them is aimed at using and developing functions situated "within" the ZPD with an ultimate goal of turning them into functions fully mastered by the students themselves. The second type of instruction is aimed at constructing or extending ZPD in those students whose ZPD is not "deep" enough. This second task includes teaching students the strategies of meta-cognition and cooperative learning, e.g. teaching them how to receive assistance from the teacher in the course of problem-solving.

The other way in which ZPD was conceptualized by Vygotsky (1986) is as a "space" within which the everyday, empirical notions of the child meet systematic, theoretical concepts supplied by the teacher. In terms of teacher training, this poses two challenges. One of them is to prepare teachers themselves for the use of theoretical rather than everyday concepts, and to be able to distinguish between them. Vygotskians (Davydov, 1990; Lompscher, 1984; Karpov and Bransford, 1995) made a thorough analysis of a number of school subjects and demonstrated that in many cases, the notions used by teachers and curriculum developers do not differ from spontaneous generalizations acquired in everyday life. As a result, students enrich their everyday knowledge but do not acquire the structure of thinking necessary for "scientific" reasoning. The term "scientific" is used here in a broader sense to include not only math and natural sciences, but also social and language sciences. The absence of proper scientific reasoning becomes particularly obvious when students start confronting "real" scientific disciplines in high school and find themselves unprepared for their conceptual structure.

According to the Vygotskian model, theoretical instruction should start in the primary school. For example, instead of teaching children how to count objects in the hope that in this way they will acquire the notion of number, Vygotskians propose starting with forming the notion of number as a universal relation or multiple derived from the activity of measuring one value with the help of another selected as a standard. The child is taught, for example, that the length of a couch can be expressed as "one broom" or "six toy crocodiles". It was shown that the notion of number as universal and unrelated to counting concrete objects greatly facilitates further learning of math concepts including that of fractions and negative numbers (Davydov and Tzvetkovich, 1991).

The second challenge for teacher training brought about by Vygotskian theory is to construct age-appropriate activities for teaching theoretical concepts. Vygotskians made an important distinction between learning in a generic sense and a specially designed learning activity (Kozulin 1995). While learning in a generic sense can become a part of many human activities, such as play, practical activity, interpersonal interaction, etc., learning in a generic sense is not a goal of any of these activities. What distinguishes learning as a special kind of activity is its focus on the changes produced in the learner him or herself. At the risk of sounding tautological, the goal of learning activity is to make the individual a competent learner.

Learning activity includes four major components: learning tasks, operations, control, and self-evaluation. It is important to understand that a learning task does not coincide with concrete reading or writing exercises, or mathematical problems. The learning task always reflects the general principle of the formation and transformation of the subject of learning. Thus, the learning task becomes a model for solving all tasks of this type. Operations involved in learning activities always follow some paradigmatic example which is either presented by the teacher or discovered by the child him or herself. The acquisition of operations includes the phase of the formation of some preliminary image of such an operation and an attempt to carry it out. The development of the control function is closely linked to the acquisition of operations, because control includes the comparison of operations with its paradigmatic example. The paradigmatic example has some universal support elements which ensure the possibility of control irrespective of the concrete variation of material. The last component of the learning activity is the student's self-evaluation. The student is oriented toward evaluation of success in mastering the general principle applicable to all problems of this type rather than specific tasks.

Instruction based on the principles of learning activity is not only age-appropriate in respect to the complexity of the learning materials, but also in terms of student-student and student-teacher interactions. For example, in the middle school a special model of cooperative learning is used that reflects special interpersonal needs of adolescents at this age (Rubtsov, 1991).

It was shown (Davydov 1988; Karpov 1995) that students who were exposed to a curriculum based on principles of learning activity acquire a much greater facility in solving non-trivial problems, problems that require data restructuring, and problems that involve far-transfer of the principle. This means that instruction based on the principles of learning activity forms in students those meta-cognitive skills and strategies which are the goal of various cognitive education programs (Fischer, 1990). The distinctive feature of the learning activity paradigm is that it is content-based and that it requires the activity to be age-appropriate.

The paradigm of learning activity constitutes another point interfacing between Vygotskian and Feuersteinian systems. Many features of learning activity appear in the MLE system as the criteria of "transcendence" and "mediation of meaning". A significant number of IE tasks and mediational principles of teaching them have the same cognitive goals as learning activity. The material of IE tasks closely corresponds to what Vygotsky designates as symbolic mediators (see Kozulin, 1998). At the same time, while IE aims at developing general cognitive strategies which are later "bridged" to concrete subjects, the learning activity constructs these strategies as an integral element of the acquisition of a given subject.

One may also notice that Vygotskian programs aimed at pre-school children have a greater resemblance to IE. Venger and Gorbov (1993) observed: "Learning activity presupposes the development of theoretical thinking, the basis for which is a system of scientific concepts. For six year old children, however, logical-conceptual forms of cognition are not nearly as typical as visual-imaginative ones. Accordingly, at this age *it is not yet a learning activity as such that should be developed, but rather its prerequisites* (italics mine - A.K.) The most adequate foundation for the subsequent mastering of the system of scientific concepts are generalized schematic notions which visually reflect the essential links and relationships of the concepts to be mastered" (p.3). There is a certain logic in this because one of the goals of IE is to form in older children those functions that more advantaged children acquired at the earlier age. Thus, IE in its compensatory function is similar to Vygotskian pre-school and first grade programs in their development generating capacity.

The teacher appears in MLE theory and practice first of all as a mediator. Because of this, the general task of teacher training is seen as preparing the teacher for this mediational role. In a more restricted sense, one can also speak of teacher training in IE as a subject in itself. The teacher as a mediator is armed with the criteria of MLE, with the cognitive map, with the list of deficient cognitive functions, and with the belief in the human cognitive modifiability (Feuerstein, 1990). Some of the problems that confront other teachers become even more insistent for the MLE-trained teacher. For example, a heterogeneous class always requires a special effort from the teacher, but for a teacher who becomes sensitized to the MLE criteria, the task of working with such a class becomes particularly challenging. How can each interaction be infused with intentionality when the class has a number of distinct subgroups of students? How can meaning be mediated when the level of acquisition of meaning is different? How can the feeling of competence be conveyed to a weak student when other students are so obviously superior in their performance? All teachers should be aware of these problems, but in more formalistic education devoid of mediational components, the teacher can "hide" behind standard procedures of the dispensation of information and rules. Thus, the first outcome of MLE-based teacher training is the heightened awareness on the part of the teacher of the interactional requirements of instruction.

Both MLE and IE focus on the formation of the cognitive prerequisites of learning in students. The process of acquisition of learning material requires certain cognitive prerequisites beyond that of the basic functions of perception, memory, and attention. The student is supposed to be able to detect the problem in the pool of raw data, to select the relevant parameters, to form hypotheses and check them, and so on. The inadequate school performance of the student can easily stem from underdevelopment of these prerequisites rather than poor acquisition of specific rules or operations. Thus, the second outcome of the MLE-based teacher training is providing teachers with intellectual and operational tools for identification of those cognitive prerequisites that are lacking in students. IE serves as an operational tool that allows teachers to develop these previously lacking prerequisites in a systematic way.

Though there is an obvious affinity between the Vygotskian notion of learning activity and the process of the formation of cognitive prerequisites discussed above, there is also a certain difference between the goals of MLE-based learning and learning according to the Vygotskian paradigm. According to Feuerstein et al (1980), the acquisition of MLE does not directly depend on either content of learning or modality of interaction: "Using the example of instruction in a preliterate society, it is clear that mediation may take a nonverbal form. The mediator illustrates his actions to an interested observer with only limited verbal, and even less semantic, interaction occurring. In our experience, the changes that occur as a result of nonverbal mediation transcend both the content and the means by which the content is transmitted" (p.23). For this reason, the experience of mediated learning is considered equally beneficial for everyday and classroom thinking. Vygotsky (1978) and his followers (Cole and Scribner, 1974; Scribner 1997), on the contrary, place considerable emphasis on changes occurring in the child's reasoning under the influence of the acquisition of higher order symbolic tools, first of all literacy and writing. For them, there is a principal distinction between interactions carried out non-verbally, orally, and with the help of written symbolization. Writing externalizes thought, takes it out of its concrete context, and makes it available for conscious analysis. Literacy skills require analytic approach. They are acquired consciously and deliberately, thus shifting cognitive functions from the natural responsive mode to the cultural deliberate mode. One may legitimately pose the question of whether the same type of "transcendence" or mediation of meaning can be achieved with and without the experience of literacy. Studies of MLE interactions in different socio-economic and socio-cultural groups (Tzuriel, 1997) indicate that there is a marked prevalence of "transcendence" in the interaction between more educated parents and their children. One may guess that this is a direct result of the literate orientation of these parents.

Beyond the acquisition of written symbolic systems lies a vast area of the acquisition of conceptual systems belonging to different content subjects. While there is no doubt that some basic cognitive prerequisites, e.g. the ability to compare, are necessary for learning any of these subjects, it is equally clear that comparisons in history, physics, and biology all require their own cognitive apparatus. This apparatus does not coincide with that of knowledge or content understood as mere information. It is rather directly related to the conceptual structure of a given subject, the acquisition of which depends on the theoretical mode of learning proposed by Vygotskians.

This brings us to the last interface between the MLE and Vygotskian theories. IE as a tool for the development of basic cognitive prerequisites interfaces with the conceptual structure of learning subjects, and a proper borderline should be found at which the general functions promoted by IE become absorbed and subjugated by this higher order conceptual structure. Vygotsky (1978) indicated that "natural" cognitive functions do not disappear with the emergence of higher order literacy-based functions, but become incorporated and transformed within the new cognitive systems. One may say that, in a similar way, basic cognitive prerequisites become absorbed within the new conceptual systems. Thus, the last outcome for teacher training can be formulated as the necessity for a teacher to distinguish between the general cognitive prerequisites and those higher order cognitive systems which alone can support conceptual learning.

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◆ Reflective Teaching: Theoretical Aspects & Practical Implications

Yaacov Rand and Rivca Reichenberg

The concept of Mediated Learning Experience (MLE) (Feuerstein & Rand, 1974, Feuerstein, Rand and Hoffman, 1978, Feuerstein, Rand, Hoffman and Miller, 1980), has gained world wide attention and is applied in a great variety of learning situations (see review – Tzuriel 1999). One of its major features refers to an intensive and long lasting interaction process between the mediator and the mediatee, in which cognitive insight is induced, fostered and reinforced, as an integral part of the learning process. Within the context of MLE, questions, for instance, are not solely an instrumental tool geared towards eliciting correct, or incorrect, answers. They are also not meant to be used as a transmitter of information, or as a device for grading the students' achievement according to their scholastic level. They are mostly, and essentially, formulated and transmitted in order to help the individual to elucidate and to elaborate upon his/her own thinking processes, responsible for the given response, regardless of its correctness.

Insightful thinking processes do not depend exclusively upon the existence of a given level of capacity, or of coincidental and episodic training experiences, in which the individual is instructed to refer to his/her inner mental processes. Insightful thinking depends rather upon a systematic and continuous effort to install a basic critical orientation towards the ongoing thinking processes. In addition, it depends no less upon the existence of the individual's propensity and readiness to invest energy in the processes, and to act efficiently and autonomously in order to benefit from such complex mental activity. If properly cultivated and reinforced the said basic orientation is supposed to generate curiosity, maintaining it throughout various learning tasks. It is also geared towards activating a spontaneous search for understanding and projecting virtual relationships in a wide range of fields of interest, and propelling the individual towards the discovery of new ideas, formulating differential hypotheses for solutions to given problems, verifying their adequacy, and so forth. In essence this means a fully-fledged "release from captivity" of the individual's stereotypical associative world, while meaningfully activating imaginative abilities, in order to broaden his/her cognitive and intellectual horizons.

The impact of mediation can be channeled in a great variety of ways. It can be directed towards increasing the readiness and motivation of the individual to act critically and analytically upon his/her mental activity. As such, it relates to the energetic component of behavior. It can be geared towards endowing the individual with appropriate systems and methods to perform such insightful observation and analysis. It can also be directed towards enhancing the individual's general capacity and level of understanding, particularly while dealing with complex intro-psychic configurations.

Schematically, and in broad terms, teaching can be conceived in two basic forms, as follows:

A. Teaching as an action

B. Teaching as an interaction.

The first form, i.e., ***Teaching as an action***, reflects the teacher's didactic attitude. The teacher's role is essentially to serve as an efficient transmitter of information, whilst the students' role is to be faithful "recipients" of the given content, or contents, to which they are exposed during classroom activity. Although the role of "recipient" cannot be defined as *totally* passive, it may be considered *relatively* so when compared with teaching which requires the student to make an active effort to autonomously generate information and apply it in various similar - or even less similar - situations. The role of "recipient" basically requires systematic and methodical organization and activation of the individual's mnemonic capacities, without necessarily referring to other major cognitive functions. Within such a context, the teacher assumes the major role in the learning situation, and determines not only the nature of the content to be transmitted, but also the general atmosphere in which learning takes place.

The social relationship between the teacher and the students is mostly oriented towards creating optimal conditions for the transmission process, and it is incumbent upon the students to adjust to the teacher's demands and intentions, and to retrieve, upon demand, *ad maximum* the transmitted and acquired information.

This form of teaching expresses itself, amongst other things, by:

a. The imposition of strict classroom discipline and orderliness;

b. Rigid and pre-planned transmission of the text;

c. Little, if any, student impact on their own study program and daily classroom activities;

d. A very reduced amount of mutual interaction between the teacher and the students, and even less so, between the students themselves. Such latter interactions are usually considered by the teacher as being "disruptive" and are firmly inhibited, or even reprimanded.

This presentation of the predominant attitudes and practices in *Teaching as an Action* is quite obviously an extremist one and is perhaps only rarely fully prevalent in current school systems, at least within democratic socio-political regimes. This presentation is still necessary for didactic purposes, in order to emphasize the great contrast between this approach and the second one - ***Teaching as an Interaction,*** which is the major topic of this paper.

Teaching as an interaction differs from the first approach in a wide variety of aspects. We will refer here to some which we consider to be essentially linked to Mediated Learning Experience (MLE). We will also analyze the needs of modern education, whose major goal it is to prepare the future generation for a rather hectic and dynamic lifestyle that will probably prevail for many decades to come.

Interactive teaching signifies, first and foremost, an activity in which the teacher and the students are involved in a learning process based upon mutuality, reciprocity and partnership in a common endeavor. This type of teaching is doubtlessly more difficult and more demanding of both partners than ***teaching as an action***. This is because it requires continuous major and minor adaptations both from the teacher and the student, in order to maintain the learning process and to render it efficient and goal-directed.

This inherent difficulty is magnified by the fact that it places both partners of the interaction in a symmetrical relationship pattern. Many teachers may find it very hard to forego the asymmetrical relationship that ensures their feelings of superiority and self-esteem which they have with their students. They often experience a profound need to consider themselves the "knowers", to view their students as people who are meant to benefit solely from their teacher's knowledge and who therefore occupy a lower position on their reciprocal relationship scale.

It is important to emphasize that the interactive process based upon mutuality also reflects one of the most primordial values of our democratic society. We are referring here to the value of "Respect of Others", i.e. the respect of human beings per se. This value is in itself of paramount importance in our life conditions of turmoil and social mobility, in which so many people have to struggle to maintain their personal dignity in a world of competition, based on varied hierarchies of superiority in a wide spectrum of fields of activity. The equality-oriented relationship between teachers and their students may become a "prototype" of human relationship patterns and a pivotal educational asset and goal to the development of a better and more humanistic society and its fundamental value system.

Actively practicing this type of value system within society's educational frameworks from the child's earliest age may significantly increase and strengthen his/her potential for becoming an integral part of the weave of human interactions within a given society. School can, and must, play a paramount role in preparing individuals for life, including the formation and fostering of appropriate value systems deemed necessary for the well-being of society. Without a doubt, knowledge transmission is a highly important function of schooling, but if schools limit themselves to serve solely as a channel for enriching knowledge, they may miss an important target of its essence and lose one of its major social goals.

This issue can also be elaborated from a different theoretical perspective. We will refer hereafter to the possible relationships between Subject and Object. These two terms can be defined differentially as being related to the specific context in which they appear. For our purpose here we will use the philosophical definition which refers to the **Object** as being related to an entity which **receives** action, as opposed to the **Subject** which itself **emits** action. A table or a chair, for instance, or any other inanimate entities are always defined as Objects because they can never act on their own. They may be used as instruments for action, but they cannot elicit any autonomous action. Conversely, animate organisms can be of a dual nature. On the one hand, they may be "receivers" of action and as such are considered Objects, on the other, they are also Subjects when they perform autonomously and act upon their environment. Hence, they can essentially assume a double role, depending upon the specific circumstances or the environmental context in which they find themselves.

As any other living organisms, human beings have the ability to be both Objects and Subjects. Moreover, the passage between the two roles (O/S) is often very swift as can easily be observed in an argument between people or in enthusiastic attempts at sharing personal experiences and impressions.

Human beings possess an additional capacity -they can concomitantly assume the dual role of being both an Object and a Subject. This is not solely a physical ability like scratching oneself or clapping both hands together at the conclusion of a magnificent concert conducted by Zubin Mehta or another artist of his caliber. Such rudimentary behavior can be observed in lower level animals such as dogs or monkeys but as far as we know, none of the latter can perform complex behaviors such as self-criticism, conduct analysis, or any other higher mental thinking processes.

The concomitant and combined Object/Subject relationship is perhaps best illustrated by meta-cognitive mental activity. In meta-cognitive processes, **we** think (S) about **our own** thinking (O). This capacity to do so is doubtless one of the greatest qualities of human beings, which makes them superior to all other animate creatures. It allows them to deviate from the planned, depart from the preconceived, activate imagination and invent new things, as well as elicit highly adaptive new behaviors across a wide spectrum of situation circumstances and changes, which may intervene in daily life and during long-term experiential trajectories.

Perceiving the student as an individual playing both roles, i.e. being both an Object and a Subject is an expression of, and is anchored in the above-mentioned value of "respect for the other". It reflects the teacher's recognition that he/she and the student share the same basic human qualities, and they are therefore committed to act according to that basic value system. Thus, this most important value not only becomes a part of our "declarative Weltanschauung", but it is also most instrumental for human adaptation, and is frequently implemented across the long-term developmental process of the growing child.

In the words of King David's Psalms, *Mikol Mlamdai Hiskalti* (Ps. 119:99). Literally translated this means "I have learned from all my teachers and become a cultivated man". Rabbi Chanina, a Talmudic sage who lived over a thousand years after King David, is cited in the Talmud as have made the following most interesting comment (freely translated by Y.R.):

I learned a great deal from my masters
I learned from my peers more than from my masters
And from my students - more than from all of them (Tract. Taanith, 7/a)

This comment expresses most profoundly, and perhaps in the most parsimonious way, what we were referring to, i.e., the dual nature, or even the multi-directional nature of the learning or teaching process. Rabbi Chanina brings to our attention most explicitly, the wonderful effect his teaching methods had upon him. It was by intensively interacting with both his peers and his students that he became culturally and intellectually enriched. We may assume that this kind of interaction with his students significantly amplified the meaningfulness of the learning process he was involved in, whether as a student, or as a master. Doubtless, this interactive nature of the learning process had a most positive effect upon his disciples as well.

It should be noted that the common benefits of both parties involved in the interactive teaching process are not marginal. They are essential to their mental development and personality formation. Such mutual interactions are deemed to generate efficient higher levels of thinking, promote more humanistic value systems, and add meaningfulness to the individual's efforts to learn and adapt to life.

As mentioned above, the very fact that teaching is based upon mutuality and equality between human beings demands continuous change and adaptation of all parties involved. Moreover, it requires a most meaningful change in the teaching style, which bears much similarity to what we call Mediated Learning Experience. The interactive nature of Mediation inherently imposes upon all the participants of the learning process continuous self-modification and adaptation of their methods of functioning to changing conditions. Each change intervening in the situation, as well as in the individual's reaction patterns, becomes a "springboard" for further adaptation processes which will subsequently produce new changes. To the ever-changing individual, even when stimuli appear the same, in essence this is no longer true. They are experienced differently, their meaning is different, as are their connotations and associative parameters.

Reflective thinking, as a major component of teaching and teacher formation activities, became prevalent as such only in the late seventies. It does, however, have a much longer history, but it has been ignored, or neglected, for many decades. This phenomenon can be explained by the fact that teaching was at those times "product oriented" rather than "process oriented". Hence, there was a reduced need for reflection so the latter remained within the realm of theory, and was only rarely practically implemented.

Already at the beginning of the twentieth century, John Dewey (1904) mentioned this aspect in teaching, emphasizing its importance. At a later stage, he published his book "How we Think" (Dewey, 1933) in which he elaborated more broadly upon this concept, trying to define it and to elaborate upon its implications on the teaching processes.

According to Dewey's definition, Reflective Thinking is an "inter-connected chain of thoughts" in which the thinking products of one idea become a point of departure for the construction of subsequent thoughts. Dewey considers that the need for reflective thinking arises particularly in situations tinged by duality, such as when dealing with the unexpected, or conflict-oriented situations, moral judgments and the solution of dilemmas, or any situations characterized by doubts and hesitations. In all these, a strong component of decision-making is involved, and reflective thinking is most instrumental in overcoming the difficulties inherent in such "unclear" situations. As such, reflective thinking is essentially an inner meta-cognitive process. This is explicitly confirmed by Kemmis (1985) in the following statement:

> Reflection is thus meta-cognitive (thinking about thinking)
> in which we consider the relationship between our thoughts
> and actions in a particular context (Kemmis, 1985).

This description of the reflective process is congruent with Dewey's view, which emphasizes the relationship between thinking processes and the subsequent thoughts and actions. In addition, Dewey perceives reflection as a bi-directional mental activity. On the one hand, it refers backwards, i.e., to the already experienced, as "stored" in our memory. On the other hand, it creates a connection with the future in light of the experienced and its associative links. In Dewey's own terms:

> Reflection means looking back as well as looking ahead
> (Dewey, 1933, pp. 95-96).

Teaching, especially when of an interactive nature, is a classic example of a situation which inherently requires bi-directional mental activities. As long as teaching itself was mostly "product oriented", such a dual view was not absolutely necessary. With the enhancement and expansion of "process oriented" teaching, reflective teaching became more and more necessary, and nowadays occupies a significant place in didactic and teacher training activities and, naturally, in professional literature.

Schon (1987) is doubtlessly one of the leading figures in this field. Among others, he emphasizes the intrinsic relationship between high level teaching and reflective thinking. He distinguishes between two kinds of reflection:

a. Reflection ON action
b. Reflection IN action

In both cases, reflection refers to deeds or thoughts which took place in the past. The basic questions, which frequently emerge during the teaching process, may relate to a variety of topics, such as, to what degree did the specific teaching act reach its pre-planned goals? What were the obstacles encountered in the given activity or in its specific fragments? What was the nature of the interactions between the teacher and the students, or between the students themselves during the lesson? What could have been done differently or more efficiently in the lesson? All these, as well as many others, can be scrutinized, and didactic methods may be criticized "post factum" in order to correct or change ad hoc different procedures, as well as to improve future teaching habits or didactic methods.

Reflection ON action is performed after the lesson has been terminated, and is based upon the events which occurred and were retained in the memory of the performing teacher or recorded by a participant observer of the given act of teaching. Its goal is mostly to correct and improve future teaching, if such correction is found possible and desirable.

Reflection IN action is of a different nature. It occurs during teaching or any other interactive classroom activity. It is a spontaneous reaction of the teacher to the experiences generated by the various components of the specific lecture or interaction. These reflections may refer to the teacher's methods and working procedures, to the students' reactions to the teacher as a person, to the contents which were taught, or to the dynamic interactions experienced by the teacher or by the students during the lesson or educational activity.

The common characteristic of the two kinds of reflection suggested by Schon (ON/IN) is that they are both an act of "looking backwards". This is, by definition, inherent to all reflective thinking. But, they differ as to the degree of proximity between the action itself and the reflective process.

Reflection IN action, is in high proximity to the deed (i.e., the object) of the reflection. Therefore, it requires a prompt grasp of the problem, and subsequently a spontaneous and rapid decision-making process geared to new solutions for the confronting, or emerging, problems and issues. Moreover, even the changes, which are introduced in the teacher's action as a result of reflection, are continuously scrutinized by similar meta-cognitive processes in order to assess their effect within the framework of the goals and objectives of the given activity. Hence, we are dealing not only with a single act of reflection, but rather with an endless chain of such thinking processes, as defined by Dewey, who perceived Reflective Thinking as an "inter-connected chain of thoughts".

Some other distinctions between the two basic reflective processes can be made:

1. Reflective thinking ON action does not only focus on the past. It can, and should, also be oriented towards the future. This is conventional procedure in all teacher training practical exercises. The experience of the past, if properly analyzed and interpreted, becomes a point of departure for future planning of teaching activities, guidance of interacting procedures, and so forth. Reflective thinking IN action, on the other hand, focuses primarily on the development and performance of the action itself during its occurrence and does not necessarily bear on future teaching activities, although at a later stage they may become the object of Reflection ON action. In other words, the two kinds of reflection are not exclusive to each other.
2. Reflective thinking ON action can be shared by others too. The teacher can be oriented, assisted, and guided by others, such as the Mediator, who tries to understand the dynamics of the situation, the errors which were made, the assessment of the implemented solutions' adequacy, and their comparison with other possible solutions as well as their hypothesized outcomes.

Reflective thinking IN action is the intimate realm of the teacher him/herself. It is a "private domain" to which nobody else has access. It is therefore a much more difficult and complex kind of activity. It also involves psychological flexibility, which is the basis for the individual's ability to make rapid decisions and to deviate from the pre-planned, and perhaps even successful, activity in the past.

These distinctions between the two processes suggested above lead us to the analysis of the general function of mediation and of mediation towards Reflective Thinking in particular. It is only by exerting Reflective Thinking ON action that mediation of insight and self-correction, of problem definition, of thinking flexibility, of a search for novelty, and so forth, can be induced. By guiding the teacher to activate such meta-cognitive thinking processes, we aspire to make the latter an integral part of the teacher's mental apparatus, to be used autonomously and spontaneously not only in a teaching environment, but also in a wide spectrum of situations where solutions to problems are not offered "ready-made" and require high level and flexible thinking.

In an extended study, Reichenberg (1995) questioned Prospective Teachers (trainee teachers) and Cooperative Teachers (young, successful teachers participating in the project) regarding the frequency of their use of reflective thinking in lessons they gave during their practical training. In her study, Reichenberg focused upon the "feedback conferences" held between the Prospective Teacher and the Cooperative Teacher following each lecture as a routine procedure. The research instrument was based upon the integrative model of Louden (1992). It contained the following four categories: a. Introspection, b. Replay and Rehearsal, c. Inquiry, and d. Spontaneity.

The findings indicated that the Prospective Teachers mostly used Introspection as a reflective procedure, whereas the Cooperative Teachers were more inclined towards Spontaneous Reflective Thinking. It was also found that during their studies, the Prospective Teachers' initial pattern of reflective thinking came closer to that of the more veteran teachers. This indicates that Reflective Teaching falls within the realm of the possible, and can be mediated, reinforced and enhanced by both external intervention and self-guided didactic experiences.

Reflective teaching, as a predominant way of acting in learning situations, is deemed to have a potent impact not only upon the teachers, but also, and to no lesser degree, upon their students. We may hypothesize that teaching based upon reflective thinking will become an educational message to be transmitted to the students by the example of the teacher who serves as a model-figure, as well as by differential and more sophisticated requirements from the students. Such repeated mediation will ultimately lead to a more frequent use of reflective thinking procedures by the students, and insightful and reflective thinking may become one of the stable features of their mental ways of functioning. Thus, their behavioral and adaptive repertoire may become enriched, which, in itself, is doubtlessly one of the major goals of any educational system. It is even more necessary in a highly developed technological society. By increasing the individual's capacity to act efficiently upon dynamic and continuously changing environments, education may significantly contribute to a better future of the forthcoming generation, as well as to the life qualities of many generations to come.

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◆ Organizational Flexibility: A Personal Account

Shmuel Rosen

Back in 1994, shortly before retiring from his position of chairman and chief executive officer of Lucas Industries, Tony Gill addressed his shareholders and Lucas employees, with the following words:

"We aim to ... develop, through commitment to innovation, communication, training and successful management of change, a Lucas [Industries] *culture which encourages and rewards enterprise, professionalism and flexibility at every level."*

Mr. Gill could well pride himself that his was not merely a theoretical statement. In that year, the UK based company employed some 46,000 people, and sold for over four billion dollars, at a profit. A couple of years after the above statement was made, Lucas merged with Varity, to become LucasVarity PLC, provider of technologically sophisticated systems and equipment to the global automotive and aerospace industries.

It had indeed been the culture of that company throughout the years, as I had personally witnessed back in the 1960s. Joining Lucas Industries in 1964 as a young engineering graduate, I rapidly became aware of the **flexibility** required at every level. Working on the development of diesel fuel injection pumps, I witnessed the changing demands impinging upon the design and development teams. Customers, for example a leading diesel engine manufacturer, wanted to see in their products better performance characteristics, smaller size, less weight, and compliance with the latest government regulations for pollution control. I recall one occasion during annual assessment sessions with the director in which I lost significant credits due simply to not having been sufficiently cooperative and flexible when asked to move, at short notice, from one major task to another. Rapid adaptability to changing demands had become a must at Lucas. I had resisted the sudden switch of priorities, and it cost me a painful setback in receiving a salary rise. Thus, the awareness of the importance of **flexibility** in industrial business organizations grew in my mind.

Years later, in Israel, when I led the production of advanced electronics systems at Elta Electronics Industries, the need for adaptability to changing environmental conditions became so acute that I had to adopt a fundamentally new approach to life to meet the pace of events. Human relations, for example, became an increasingly important factor in all organizational processes. The manager's personal flexibility was essential for coping with organizational problems, such as swiftly reacting to the onslaught of competition or to a shortage of financial and technological resources in the face of surging customer demand.

I took part in organizational changes occurring at increasing rates at Elta. As a subsidiary of Israel Aircraft Industries (IAI), the largest high-tech corporation in Israel, Elta developed, manufacturing, and marketing hi-tech electronics systems and equipment for the world's defense customers and the civil aviation market. When demand for military equipment slumped as a result of drastic defense budget cuts, IAI felt the repercussions, along with most other defense contractors in the USA and Europe.

At IAI, the staff was forced to go through the agonizing process of restructuring, changing jobs, having to quickly learn new skills, having to tell people - loyal workers – that they were no longer needed. Going through this personally difficult process, while shouldering the responsibilities of a manager, the concept of **organizational flexibility** became ever so meaningful. Through personal managerial experience, I became convinced that organizational flexibility in industrial settings really depended first and foremost upon the personal flexibility of the individual manager, mainly at the middle-management levels.

We thought we had a clear vision of our responsibilities, but did we possess the tools? Recently, recalling those events while talking to a friend and business partner, he produced a book by Kathryn Harrigan, who in 1985 wrote about strategic flexibility:

"The barriers to flexibility can be asset-specific, but they are more likely to be mental. Too many managers refuse to face the ugly reality that they are in a sick business or that their firm's strategic posture is simply wrong. Even when it comes to phasing out their no longer profitable products or product lines, many otherwise well managed companies hang on for too long. The worst offenders are plant or branch managers who recognize the trouble but cannot face giving up their own positions or laying off loyal workers. Thus bad news is kept from top management for as long as possible"

"Strategic flexibility," I mumbled to my partner, "easier proclaimed than gone through in person, my friend . . ." A flash of reflection took me back to one April morning, back in 1975. I remember having sat in front of the greatly-admired, new President who told me that, as a result of the major reorganization, my department would be split up and the people dispersed. As head of that department, I would be offered another, though lower position in the company. I remembered the feeling of cold sweat running down my back listening to the matter-of-fact words. It was not easy, for I refused the offered job. For days, weeks, I was not able to accept the verdict and tried, in vain, to reverse the situation. I strolled from one office to the next, seeking support from colleagues. But their response was either disappointing in its apathy, or futile in its advice. Some people shook their heads in sympathy, others could hardly conceal their glee. So there I was, exiled to one of the "cold-room" offices at the end of the long corridor, my self-esteem evaporating as the days went by. I was too bewildered to take any sensible action, too ignorant of how to deal effectively with my hitherto unfamiliar predicament.

Emotional salvation came from an unexpected source. One evening, at the dinner table, our older son Gadi, then aged 10, listening to my lamentations, feeling my unhappy mood, asked innocently: "Dad, why don't you just plow on?" To this day I cherish that compassion. Listening to those simple words, as if someone had waved magic wand, my anxiety vanished, and the road ahead appeared lucid and clear.

My friend commented knowingly: "Change and organizational flexibility, then, is not an entirely vague concept for you". "You bet!" I replied, still quite distraught by the memory of those bleak days. My friend went on, seemingly oblivious of my tinge of emotion: "Think about how much personal agony you and the others in the company could have spared yourselves had you adopted anything like the wide, participative involvement approach we now practice within the organizations".

Suddenly it dawned on me. Had I been more involved in the process of change at that time, more aware of Elta's specific needs to reorganize a customer-oriented structure, understanding the vital importance of financial cutbacks, agreeing on taking a share of the burden, voicing my suggestions at meetings, assuming responsibility for implementing decisions reached in a truly democratic fashion, I no doubt would have been much more cooperative and committed!

At IAI, strategic planning was a routine procedure, frequently involving wide circles of management. But only at first. When the updating of plans was called for there was usually little time for long discussions into the night.

Alas, by that time, the chief executive no longer could afford the time for consensus-building, democratic exercises. Summoning his closest aides, he would rehash the strategy, informing everyone afterwards. Naturally, those not taking part in the strategy-update sessions gradually lost their motivation and inner commitment. The mood of alienation was widespread. You could hear people mumbling: "If they revised the plan without us - let them implement it!" 'Them' being the Chief and his inner circle; 'us' being the managers charged with execution of the company strategy. Human nature works that way!

This manifested itself mainly at the middle management levels, as a case study performed at one division, MHT, has shown. MHT is IAI's central training and technical publications division, providing training and vocational education for all of IAI's customers and employees. Using my responsibilities at MHT as a lever, and supported by MHT's general manager, I initiated a pilot project, which deserves some fuller description in the pages that follow.

The pilot project undertaken at MHT began in 1991. The business climate on the international market was volatile, and uncertainty prevailed. IAI was in the midst of a prolonged restructuring process which began in 1987, the year the Israel government discontinued IAI's prestigious LAVI fighter plane program. Profits were marginal, cash was scarce, revenues stopped growing, and people were laid off in large numbers. At the same time, the entire corporation became deeply committed to Deming's Total Quality Management (TQM) process. His teachings were instilled throughout the company, from the chief executive down. In 1991, MHT completed a thoroughly-executed process of strategic planning, wherein company values and longer-term objectives were established using a process of management group-discussions and decisions based on a wide management consensus. Measurement systems were installed, and performance characteristics were measured continually. Periodic, formal upward reporting routines were established, including the procedure of MHT's general manager reporting directly to IAI's chief executive and president.

Ardently pursued, and fully committed, the management at MHT believed that expected business results would not be long in arriving and would be significant. With such expectations, little wonder that there was disappointment that the rate of progress did not match the pace of events on the market. The pilot project at MHT was designed in line with the TQM program adopted at the IAI corporation. One specific company goal, called *continuous customers' satisfaction*, was selected for this specific case study. The measurement and monitoring procedure, implemented over a period of 27 months, from 1991 through 1993, is described in Appendix B of this paper. Generally, results fell short of expectations. Despite considerable management commitment, encouragement and support, customer satisfaction indicators improved only by less than 10 percent. This rate of adaptability to requirements on the market was considered by MHT's management as totally inadequate. So, it was decided, late in 1993, to embark upon an entirely new approach. Attention was focused on the individual manager.

The new approach derived its inspiration from results achieved by Jack Welch, the eminent chairman and chief executive of General Electric Corporation. In his interview with the Harvard Business Review staff (1989) he was asked what made a good manager. Jack Welch replied:

"I prefer the term business leader. Good business leaders create a vision, articulate the vision, passionately own the vision, and relentlessly drive it to completion. Above all else, though, good leaders are open. . .

They are informal. They're straight with people. They make a religion out of being accessible. They never get bored telling their story.

Real communication takes countless hours of eyeball to eyeball, back and forth. It means more listening than talking. It's not pronouncements on videotape, it's not announcements in a newspaper. It is human beings coming to see and accept things through a constant interactive process aimed at consensus. And it must be absolutely relentless. That's a real challenge for us. There is still not enough candor in this company. [By candor] *I mean facing reality, seeing the world as it is rather than as you wish it were. We've seen over and over again that businesses facing market downturns, tougher competition, and more demanding customers inevitably make forecasts that are much too optimistic. This means they don't take advantage of the opportunities change usually offers. Change in the marketplace isn't something to fear; it's an enormous opportunity to shuffle the deck, to replay the game.*

Candid managers - leaders – don't get paralyzed about the 'fragility' of the organization. They tell people the truth. That doesn't scare them because they realize their people know the truth anyway.

We have had managers at GE who couldn't change, who kept telling us to leave them alone. They wanted to sit back, to keep things the way they were. And, that's just what they did - until they and most of their staff had to go. That is the lousy part of this job. What's worse is that we still don't understand why so many people are incapable of facing reality, of being candid with themselves and others."

MHT's general manager [acting as an example of candor himself] and some of his colleagues on the management team searched for some time for a suitable method of enhancing the individual flexibility, cognitive powers, and learning capabilities of leading professionals in the company, from the general manager down. As it turned out, the best method available was Feuerstein's Instrumental Enrichment program (1980; 1984).

Before embarking on this program, however, an essential prerequisite had to be achieved: Creating a climate of candor and openness in the organization. By setting self-examples, the general manager and top managers, instituted open channels of communication and critique, through their everyday behavior and by a process called *upward appraisal*. Upward appraisal involved assessments of the manager's qualities and performance as considered by his/her subordinates. Independent of this appraisal, the management team established a scale defining the relative importance of each of those managerial qualities and performance characteristics in terms of their influence upon the company's eight established values, namely:

1. Profitability
2. Continuous customer satisfaction
3. Quality of process & product
4. Congenial workplace
5. Professionalism
6. Productivity
7. Innovation
8. Teamwork and integrative effort.

The obvious objective was for the manager to obtain a critical review of his/her performance characteristics as perceived by his/her subordinates, and then examine how these specific results match with the relative importance of each characteristic in terms of the company's *values* or goals. Not only did this process in itself enhance openness to criticism, but it also provided the manager with a self-improvement tool by which individual progress and personal growth could be measured and navigated.

The realization that people could modify their thinking capabilities and achieve dramatic improvements in mental powers originated in Feuerstein's (1990) Theory of Structural Cognitive Modifiability and from his work on Mediated Learning Experience (1991). In order to verify the efficacy of this approach, MHT undertook to apply Feuerstein's Instrumental Enrichment program and review the results at MHT. In 1994, teams of managers and instructors, including the general manager, (and I, myself) participated in a 90-hour Instrumental Enrichment (IE) program. Taking advantage of the fact that Professor Reuven Feuerstein, who created the IE program, lives and works in Israel, MHT could enter into a cooperative agreement with him and his International Center for the Enhancement of Learning Potential with headquarters in Jerusalem.

The importance of organizational flexibility for long-term survivability has been articulated by eminent industrial leaders over the recent years. The connection between organizational flexibility and personal flexibility of the incumbent managers - at middle-management levels - was the subject of this paper.

We have defined flexibility as the rate and intensity at which an organism adapts to changing environmental conditions. We have shown how a business unit could well judge whether its flexibility is adequate; in the case described, of enhancing continuous customer satisfaction, an improvement of less than 10 percent over a time span of more than two years was considered inadequate. Hence, we may take it that the degree of flexibility can be a parameter open to judgment by the organization itself according to its needs at a certain time. This study is not concerned with such value judgments. If the organization - its leaders - decide flexibility should be increased in order to survive, we take it from that premise.

The problem is to demonstrate that organizational flexibility is directly proportional to personal flexibility of the organization's middle-managers.

The research hypothesis was that the ratio between the improved personal managerial characteristics and the original ones was similar to the ratio between the improved organizational values and the original ones. Both the personal and the organizational parameters were, of course, measured over the same time-span. The personal managerial performance characteristics applied for this study were those that, by consensus, were perceived as having had the most influence upon organizational performance goals.

The managers under study set out to improve their flexibility by attending seminars of Feuerstein's Instrumental Enrichment (IE) program, specially customized to suit their needs.

The importance of IE is that it produces structural changes in the individual, thus providing him/her with cognitive tools to cope with new and unknown situations that he/she may encounter. Hence, the same manager should find it easier to adapt and to modify according to the needs at the time.

If, indeed, the hypothesis is verified and personal flexibility of incumbent middle-managers affects organizational flexibility, in a directly proportional fashion, this can provide an important tool to ensure organizational survival. Thus, when business leaders proclaim and demand "flexibility at every level", they could then set out to achieve it by investing at the appropriate levels, and may even come closer to anticipating tangible organizational and business results.

At an era when change is occurring at an ever-increasing pace, it becomes of paramount importance to equip the individual with cognitive tools to deal with new and unknown situations. In industry, problem solving, for example, is a continual process in which employees are involved. Their capacity to tackle new and unknown problems becomes a source of strength to the company. A very meaningful outcome of this study is the realization that investment in the development of the cognitive powers of the individual may benefit the organization as a whole.

"The current belief that cognitive development can be enhanced and should constitute a primary goal of education is attributed to the fact that the need to improve cognitive abilities is now more urgent than ever before." [Because of the increasing pace of change] "Feuerstein advocates for education systems that consider intellectual power as their end rather than means. He was the first to promulgate the concept of Mediated Learning Experience (MLE) as the most critical modality of human learning and a critical factor in the variation in cognitive performance within and between individuals. His assumption that intelligence is modifiable by MLE regardless of age, level of functioning,

or organic condition offers the quintessential icon for the optimistic educator - perhaps the only real educator." (Ben Hur, 1994).

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◆ Cognitive, Affective and Academic Changes in Specially Challenged Inner-City Youth

James T. Kinard

Introduction

This paper is a report on some of the outcomes that were produced through six pilot demonstrations of Feuerstein's Instrumental Enrichment (IE) with Mediated Learning Experience (MLE) intervention integrated with environmental technician training. These outcomes were expressed through cognitive, affective, and academic changes in specially challenged inner-city youths and adults in various communities in the United States.

The Environmental Technician Training Program at DePaul University Office of Applied Innovations targets inner-city communities in the United States that have histories of high levels of environmental pollution. Residents in these communities, and in many cases their parents and other family members, have been disproportionately exposed to toxic environmental contaminants that range from organics to heavy metals, such as lead, cadmium, arsenic, chromium, etc. These toxic parameters have invaded every environmental domain in the community, including the atmosphere, soil, precipitation, water courses, and vegetation.

The residents in these communities are negatively impacted in a number of ways. First, there are negative health effects due to the absorption of pollutants that range from highly carcinogenic, cancer-causing, agents to parameters that impact the nervous system such as toxic lead, causing brain damage, learning disabilities and many other problems. Secondly, there is severe economic deprivation due to chronic unemployment, underemployment, and low family income.

In most cases, industrial firms have left contaminated, abandoned sites in the community that are now classified as SUPERFUND sites, RCRA (Resource Conservation and Recovery Act) sites, or Brownfields. Seldom were community residents hired by the firms that did the polluting. In addition, when such sites are remediated or cleaned up, large environmental firms come into the community with workforces that do not include community residents. Thus, the individuals and families who are most severely impacted from the toxic contamination do not benefit economically from the operations of the firms nor the cleanups which are performed often from large injections of public funds. In addition, when firms abandon the community, the tax base of the community sharply declines, negatively impacting the quality of education, healthcare, and other factors.

Contamination often stems from other sources also. In each case, community residents live in pre-World War II homes with damaged, lead-based paint that produces lead dust that is inhaled and ingested, and that have old lead-containing pipes and fixtures. Many of these homes also have asbestos-containing material. All of these communities are impacted with lead dust in playgrounds, in yards, and in streets due to long histories of high vehicular flow when leaded-gasoline was widely used.

This scenario constitutes severe cases of Environmental Justice or Environmental Injustice, depending on the perspective by which they are viewed. Through an education and training program at DePaul University Office of Applied Innovations, some of these community residents are taught critical thinking skills and are given environmental technician training so they can secure jobs with environmental remediation firms and initiate careers in the environmental remediation industry. This unique education and training model integrates IE and MLE with short courses in environmental technician training.

The goals for integration of IE and MLE with environmental technician training are:

- To develop the mindset and motivation for focused engagement in environmental training; and,
- To engage students in rigorous thinking and scientific and mathematical inquiry as a catalytic and developmental agent to prepare them for elaboration and understanding of the technical course content.
- To help students become proactive learners and independent thinkers who work to improve the quality of life for themselves, their families, and their community.

The environmental technician training courses include:

- Lead-based Paint Abatement Worker Training;
- Hazardous Waste Operations and Emergency Response Training (HAZWOPER);
- Asbestos Abatement Worker Training;
- Environmental Phase I and Phase II Training; and
- Underground Storage Tank Removal Training

The population characteristics of the target groups are:

- Inner-city
- Youth and young adults
- Ethnic minorities—African-American with some Latinos and Caucasians
- Many with history of drug or alcohol addiction
- Some involved with gangs
- Chronically unemployed and economically disadvantaged

- Exposed to high levels of toxic lead and other environmental contaminants
- Many involved in the criminal justice system
- Low self-esteem

To determine the impacts of the IE with MLE intervention on the critical thinking of the trainees and their readiness to learn, a battery of pre- and post- cognitive tests was administered prior to and following the IE with MLE intervention, respectively. First, the author reports on some astounding results for the RL-3 Logical Reasoning test. This instrument tests the ability of the student to reason from premise to conclusion. It also tests the attention the student gives to details of the presented materials while ignoring irrelevant information.

Let us focus on vertical bar graphs on the left-hand side in Figure 1 at this time. The first bar is the mean class result for the pre-test in Logical Reasoning, while the second graph is for the post-test. Notice in Study A that the average performance of the class was 1.6 before the IE with MLE intervention. After the class was given 60 hours of IE with MLE the average performance in logical reasoning increased to 5.1, a 219% increase due to IE with MLE. In Study B, we see that there was a 415% increase. Study C had a 1256% increase (See Figure 2) and Study D had a 252% increase. Study E had a 625% increase (See Figure 3), and F had a 1504% increase.

Now let us focus on the horizontal bar graphs on the right-hand side. The top bar is the percent of students in the class who increased in going from pre- to post-testing, while the middle bar is for the percent of students who decreased, and the last bar is for the percent of students who did not change their score from pre- to post-testing. Notice that for Study F with only 15 hours of IE, 60% of the students in the class increased in logical reasoning from pre- to post-testing while 40% of the students decreased. There was instability also for Studies E and D with only 32.5 and 30 hours of IE, respectively. In Study A with 60 hours of IE, 75% of the students increased in logical reasoning from pre- to post-testing while 25% of the class decreased. In Study B with 72 hours of IE, 84% of the class increased while only 16% decreased from pre- to post-testing. In Study C with also 72 hours of IE, 100% of the class increased in logical reasoning ability from pre- to post-testing. In Study B the class was given only 35% of the instrument Analytic Perception, while in Study C the class received 70% of this instrument. As shown in Table 1, there was almost an equal coverage of the other 3 instruments in Level 1 - Organization of Dots, Orientation in Space 1, and Comparisons. Thus, as the number of hours of IE along with coverage of the first four instruments increase, the logical reasoning ability of a large percentage of the class increases.

We can conclude that a major finding for this work is that there was an increase in logical reasoning ability in the range of 200-1504% due to IE with MLE for all six demonstrations involving specially challenged inner-city youths and adults. Further, the pre- and post-logical reasoning tests were in a verbal modality. During the IE with MLE intervention, emphasis was placed on the principles and processes of thinking and metacognition (thinking about thinking). No direct effort was devoted to teaching reading. Therefore, the increase in logical reasoning as measured by an instrument that is in a verbal modality is a far transfer effect. It is important to note that many of these students were high school dropouts and had faced previous academic failure, including being labeled as having poor reading comprehension skills.

Three other pre- and post-cognitive tests were administered prior to and following the FIE with MLE intervention, respectively. They are VZ-2 Visualization, CF-1 Flexibility of Closure, and S-2 Spatial Orientation.

- VZ-2 VISUALIZATION - This instrument tests the ability of one to manipulate or transform the images of spatial patterns into other arrangements. The test requires the subject to mentally restructure a figure into its components for manipulation.
- CF-1 FLEXIBILITY OF CLOSURE - This instrument tests the ability of one to hold a given visual precept in mind so as to disembed it from other well-defined perceptual materials. This test requires the subject to search a distracting perceptual field in order to find a given configuration.
- S-2 SPATIAL ORIENTATION - This instrument tests the ability of one to perceive patterns or to maintain orientation with respect to objects in space.

We notice in Study F when the IE was only 15 hours, that the mean class score increased for V-2 and S-2, but decreased for CF-1 (See Figure 4). In addition, notice the instability due to the percentage of students who decreased between pre- and post-testing (See Figure 5). Also notice that students were given only 55% of Organization of Dots and 59% of Orientation in Space 1.

In Studies E and D with 32.5 and 30 hours of IE with MLE, respectively, the instability has improved over what is shown in Study F, which is due to the increase in the hours of IE with MLE and the use of all four instruments instead of just two instruments (See Figures 4, 5, 6, 7, 8, and 9). The greater coverage of the instruments in Study E as compared to Study D probably caused greater stability in test results for RL-3 and VZ-2.

In Study A, the IE hours are almost doubled what is offered in Studies E and D, but there is less coverage of Organization of Dots and

Orientation in Space (See Figures 10 and 11, and Table 1). The potential impacts of the increase in hours of IE with MLE were probably offset by the reductions in coverage of the instruments. Studies B and C were both performed with 72 hours of IE with MLE (See Figures 12, 13, 14, and 15). Notice, however, the near lack of instability in the data for Study C as compared to the high instability for Study B. Study C has greater coverage of all four of the instruments with 70% coverage of Analytic Perception, twice the coverage in Study B (See Table 1). It appears that two factors, the hours and the coverage of the instruments, are both critical in bringing about structural cognitive modifiability for all of the students in the class.

Correlations between Cognitive Testing Results and Environmental Technician Examination Scores

Other major findings are the strong correlations between post cognitive test results on RL-3 and CF-1 and environmental technician examination scores (See Diagram 1). Strong correlations, at the 99% level of confidence for the 2-tailed test (the Pearson Correlation) were found between post- RL-3 results and examination scores on: a. HAZWOPER; b. Lead Based Paint Abatement; and, c. Underground Storage Tank Removal. The correlation coefficients were 0.790, 0.743, and 0.736, respectively. The only exception was that the coefficient of 0.753 for correlation with HAZWOPER scores was at the 95% level of confidence. Strong correlations did not exist between pre-cognitive testing results and examination scores. One is cautioned against extrapolating these findings to a general population of students, since it is likely that each correlation will not be as strong when tested on a larger data set, as a larger group of students will introduce more variability.

These findings are not surprising when considering that the pursuit of the goals of the first four instruments in IE produces specific cognitive functions that form the prerequisites for efficient performance on both the environmental training examinations and the cognitive tests.

In their Journals of Reflection and survey responses, students:

- Related challenges in IE exercises to different problems and struggles in life. Students stated that use of critical thinking to evaluate and analyze problems/ tribulations can produce good outcomes or solutions;
- Stated that checking for accuracy and precision will cause them to make fewer mistakes. (They indicated that IE will be used to help them make better choices.);
- Bridged the use of hypothetical thinking, if…then thinking, to the safe and efficient performance of hazardous waste operations and

emergency response work and other environmental technician work;
- Indicated that IE will help them develop a clear perception of each concept, collect clear and complete information, and define each problem when doing environmental technician work;
- Stated that they will use IE in their private lives; and,
- Stated that:
  - IE has helped them to spell words like in-trin-sic. (Some were not confident when spelling and reading in front of people prior to the IE intervention);
  - IE has helped them to reduce their impulsiveness and they see the importance of this application in the high risk environments of environmental technician work;
  - IE has also helped them to move to higher levels of thinking and to investigate and analyze events, problems, and situations more deeply; determine critical attributes and distinguish characteristics of subjects, objects, or events; formulate solutions through hypothesis formulation and hypothesis testing before taking action; and,
  - IE helped them to think faster and more correctly, which is needed in the environmental industry for efficient performance.

Students related the challenges they dealt with in IE to challenges in life and expressed benefits in both the cognitive and affective domains. One student wrote, "I had a very hard time because I failed to use the tools I obtained. First, I had to do a systematic search to find my points of reference; do a visual search, then remain calm because I got very angry when I couldn't find what I needed. I must say that this sheet gave me the most difficulty but when I used cognitive thought I found it was not as hard as the first frame. It's important to use all the skills you gained and put them to use as you visualize."

Another student said, "The IE tasks were the ones I liked. They were difficult because you have to do intense systematic search to find what you need. These sheets gave me a feeling of confidence in my skills because you have to look and find the whole picture before you can make a move. These tasks I feel fine tune the mind."

Other quotes from students follow.

> *"This class has helped me develop my cognitive functions to a high level. The class was good for my self-confidence. I've been able to reduce my impulsivity and stop and think things out utilizing my new acquired skills. This class has more applications in the field of HAZ/MAT and in my life than I can write. It has been great taking this course."*

"I learned that you don't ask to be loved, but love comes anyway. I love all of my team members. I owe myself and all of my team members 100%."

"I must say from the start I never thought I'd complete it but, let me tell you, Dr. Kinard makes you think, very hard. He's an excellent instructor on enlightenment and cognitive thinking. He's taught me so much, how to deal with any given situation by thinking everything through all the possibilities, to form a plan of action. He's given me new light where there was none, new hope. I feel very inspired, ready to get to work and continue to learn even more, about this business to help save our environment and our children. I would hope that there are many more training classes given by these fellas, they are worth their weight in gold."

"Throughout the entire process of this program Instrumental Enrichment has improved many areas of my life. Be a better person and having the ability to make sound judgement decisions and taking responsibility for the decision being made. This tool assisted in being a better husband to my wife and a better parent and father to my kids. At work it has enabled me to advance myself at a level of comprehension and decisiveness in situations that may arise during a particular project. Understanding that each situation is different form others though they may have similarities, to keep in mind that I must use hypothetical thinking with all aspects of life. Home, work, and play."

"Lesson 15 indicates that there are twists and turns, crossroads that we must endure, (curvilinear lines), making a decision and using proper judgment again not only affects you but others around you. This reverts back to taking responsibility for your actions. Lesson 23 indicated to me that no matter how big or small the situation may be, it is how strategically you address the objective at hand and with proper judgment using hypothetical thinking you should be comfortable with the decision you have made and stand firmly on that decision, taking responsibility."

"Analytic Perception—This instrument basically assisted me in analyzing difference between situations or individuals by finding underlying problems within a problem, i.e. the natural

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> *root or cause, when the surface or distractionary problem at hand is superficial. Breaking down the component or problem (dissecting, or systematically searching) and rebuilding from there may resolve what is at hand and also clear all other surfacing or surfaced distractions that are the hidden root or cause."*
>
> *"The instrumental enrichment component of the program has helped me with my child's homework, has helped in my marriage. When using the scientific approach to trouble shooting in other skills and trades. The IE has improved on my thinking skills. When working with others the IE has helped me to teach others to organize their thoughts first to think things out."*

The classes reflected diversity with unity. Any tension or resentment that may exist here in communities was totally absent among class members who reached out to each other with a genuine sharing and supportive network.

During an exercise of critical thinking and cognitive function development, which required students to examine situations from various perspectives to gain a clear perception, one student commented that it would be much better if "people in the world see how insignificant their physical features and racial differences are."

A wife of one of the students wrote, "What I have observed from the hazardous material class that every one is motivated and wants this program to move on. My husband is in the class and I see a tremendous change in him. Before this class started he had jobs but they did not last more than six months. I told him he should go to school and get some type of training to get a better job, but he always ignored me. I guess he changed his mind and he went to school. He can't stop talking about the class and how he wants to start his own business. This class changed him so much that after this class is finished he is going to take a business class. I'm very proud of him for going back to school. This class is the best class that I [have] seen in a long time. They are there everyday; no one misses a class unless it is in an emergency. They respect everyone at OICW. I always see a smile on everyone's face, especially when they passed their test. That was the happiest group of them all. This class made a difference on everyone."

An independent observer wrote, "What I have observed from the men in the Hazardous Waste management class is remarkable. Their whole outlook on life has changed for the better. It seems to me that they have a sense of urgency about getting started and succeeding in the goals they have set forth. With a lot of the negativity in East Palo Alto, it's great to see a course like this change the lives of these young men, and I hope this course will continue to change the lives of many more."

One student wrote in his evaluation of the course that, "It has given me new light where there was none, new hope."

Summary of Findings

- As the dosage of IE for level 1 approaches 70-80 hours with 80%-100% coverage of the 4 instruments, a threshold for positive changes to be initiated in cognitive functioning for the majority of the class may be reached for youths and adults above 14 years of age.
- IE with MLE can be utilized to "prime the intellectual and motivational pump," to enable youth and adults to engage in technical studies and scientific and mathematical inquiry.
- There appear to be strong correlations between positive changes in students' cognitive test results and their performance on environmental technician training examinations.
- Students experienced increased motivation.
- Students demonstrated increased feelings of competency and self-worth.

Hypothesis

- A dosage of 270-300 hours of IE with MLE covering from 80-100% of the 14 instruments can substantially modify the cognitive structures and enhance the learning potentials of youth and adults 14 years and above to produce intrinsically-motivated autonomous learners and independent thinkers.

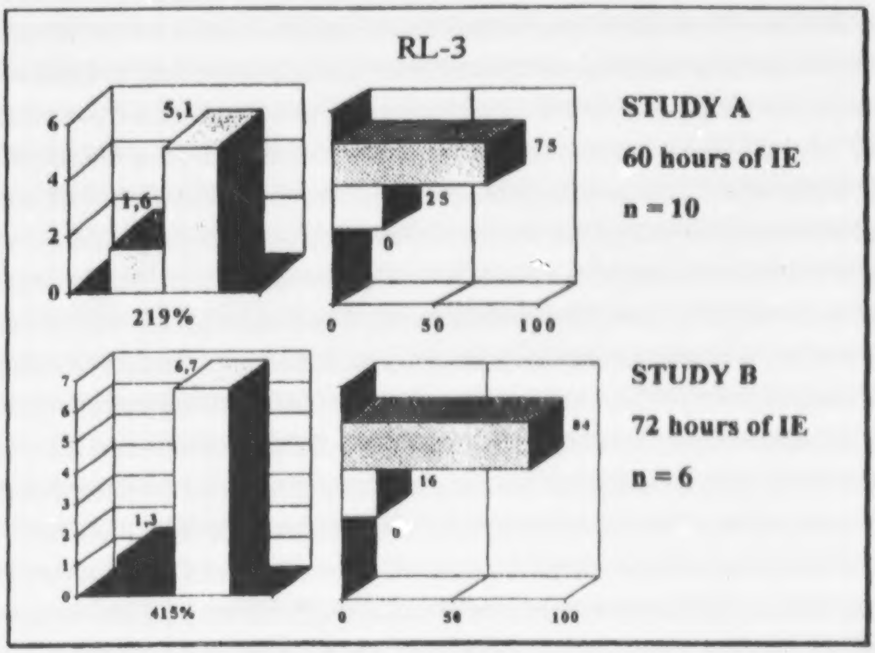


Figure 1

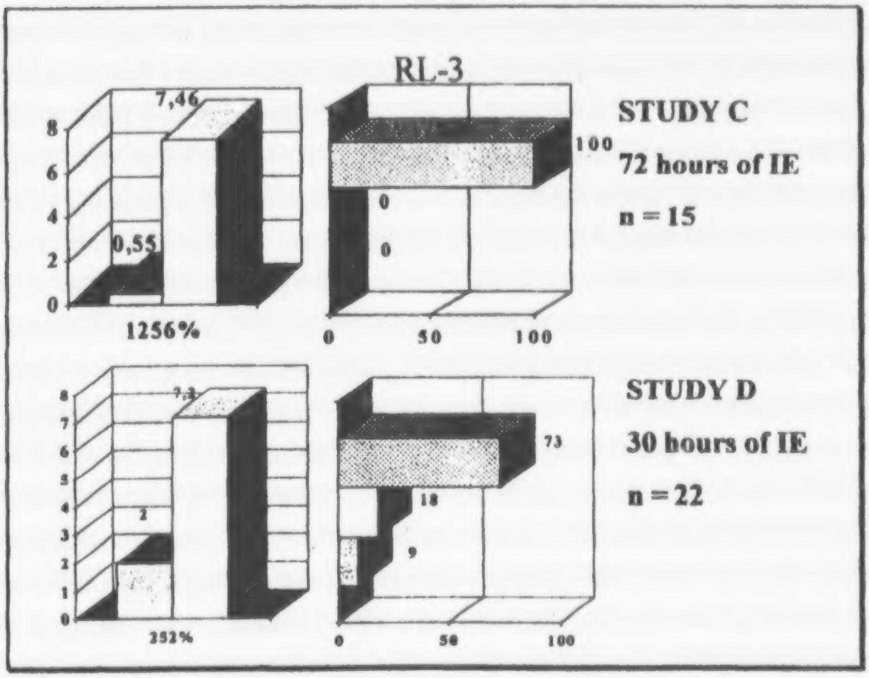


Figure 2

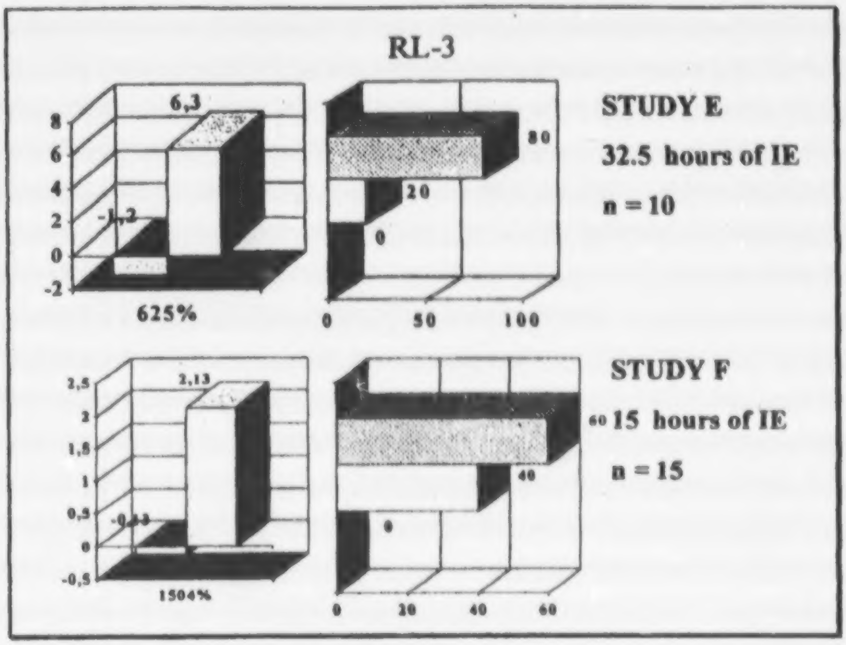
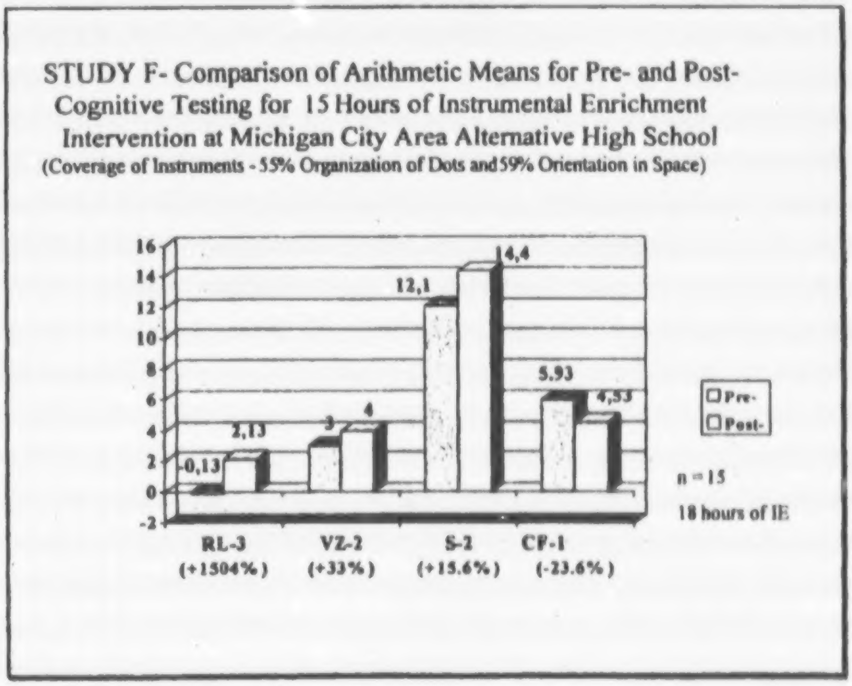


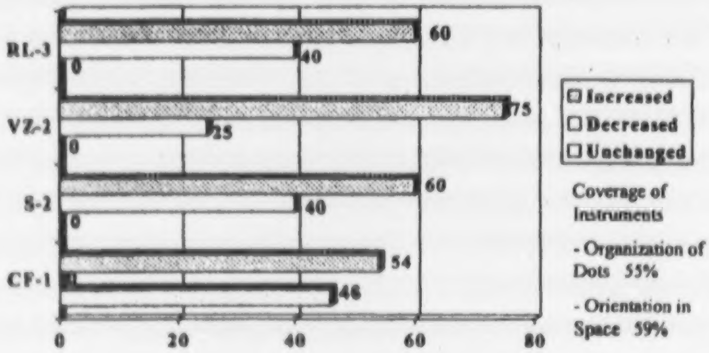
Figure 3


STUDY F- Comparison of Arithmetic Means for Pre- and Post-Cognitive Testing for 15 Hours of Instrumental Enrichment Intervention at Michigan City Area Alternative High School

(Coverage of Instruments - 55% Organization of Dots and 59% Orientation in Space)

Figure 4

STUDY F - Comparison of Percent Student Change in Pre- and Post-Cognitive Testing for15 Hours of Instrumental Enrichment Intervention at Michigan City Area Alternative High School



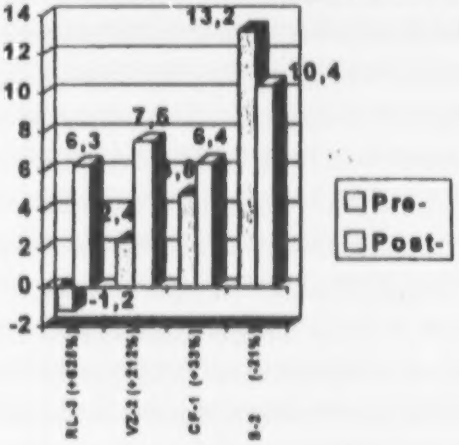
Coverage of Instruments

- Organization of Dots 55%

- Orientation in Space 59%

Figure 5

STUDY E
COMPARISONS OF ARITHMETIC MEANS FOR PRE-AND POST- COGNITIVE TESTING FOR 32.5 HOURS OF INSTRUMENTAL ENRICHMENT INTERVENTION



- Coverage of Instruments
  - Organization of Dots 100%
  - Orientation in Space 100%
  - Comparisons 35%
  - Analytic Perception 55%

n = 10
32.5 hours of IE

Figure 6

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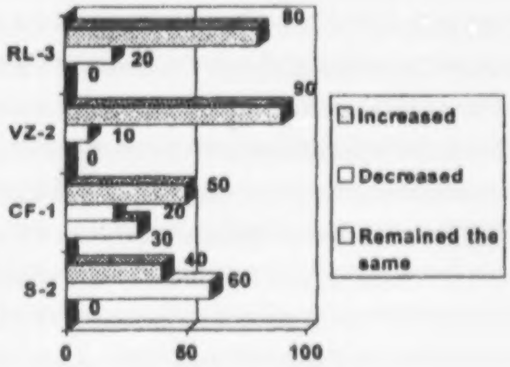
STUDY E
COMPARISON OF PERCENT STUDENT CHANGE IN PRE- AND POST- COGNITIVE TESTING FOR 32.5 HOURS OF INSTRUMENTAL ENRICHMENT INTERVENTION

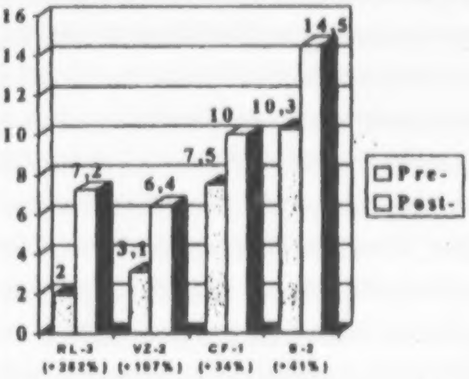


- Coverage of Instruments
  - Organization of Dots 100%
  - Orientation in Space 100%
  - Comparisons 35%
  - Analytic Perception 55%

n = 10
32.5 hours of IE

Figure 7

STUDY D
COMPARISONS OF ARITHMETIC MEANS FOR PRE- AND POST- COGNITIVE TESTING FOR 30 HOURS OF INSTRUMENTAL ENRICHMENT INTERVENTION



- Coverage of Instruments
  - Organization of Dots 73%
  - Orientation in Space 59%
  - Comparisons 17%
  - Analytic Perception 20%

n = 22
30 hours of IE

Figure 8

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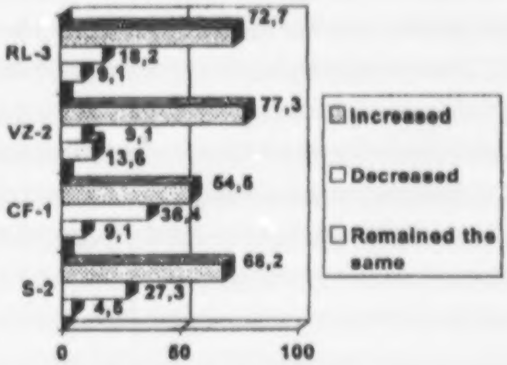
STUDY D
COMPARISON OF PERCENT STUDENT CHANGE IN PRE- AND POST- COGNITIVE TESTING FOR 30 HOURS OF INSTRUMENTAL ENRICHMENT INTERVENTION

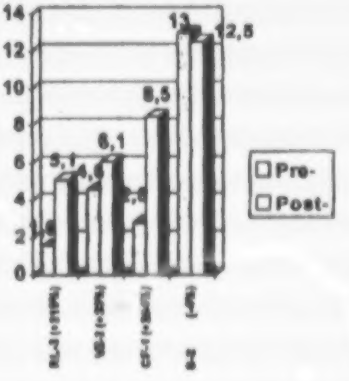


- Coverage of Instruments
  - Organization of Dots 73%
  - Orientation in Space 59%
  - Comparisons 17%
  - Analytic Perception 20%

n = 22
30 hours of IE

Figure 9

STUDY A
COMPARISONS OF ARITHMETIC MEANS FOR PRE- AND POST- COGNITIVE TESTING FOR60 HOURS OF INSTRUMENTAL ENRICHMENT INTERVENTION



- Coverage of Instruments
  - Organization of Dots 62%
  - Orientation in Space 10%
  - Comparisons 8%
  - Analytic Perception 20%

n = 10
60 hours of IE

Figure 10

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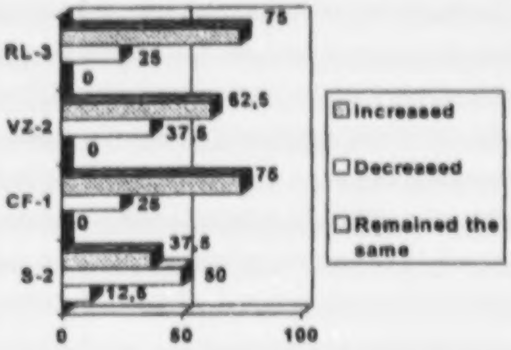
STUDY A
COMPARISON OF PERCENT STUDENT CHANGE IN PRE- AND POST- COGNITIVE TESTING FOR 60 HOURS OF INSTRUMENTAL ENRICHMENT INTERVENTION

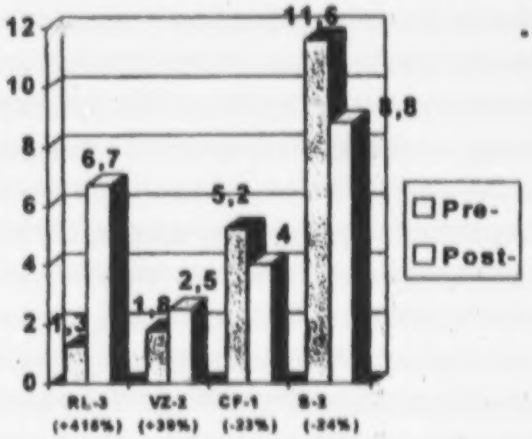


- Coverage of Instruments
  - Organization of Dots 62%
  - Orientation in Space 10%
  - Comparisons 8%
  - Analytic Perception 20%

n = 10
60 hours of IE

Figure 11

STUDY B
COMPARISONS OF ARITHMETIC MEANS FOR PRE- AND POST- COGNITIVE TESTING FOR 72 HOURS OF INSTRUMENTAL ENRICHMENT INTERVENTION



- Coverage of Instruments
  - Organization of Dots 64%
  - Orientation in Space 90%
  - Comparisons 15%
  - Analytic Perception 35%

n = 6
72 hours of IE

Figure 12

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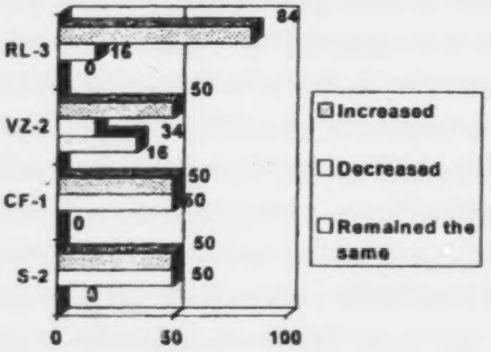
F

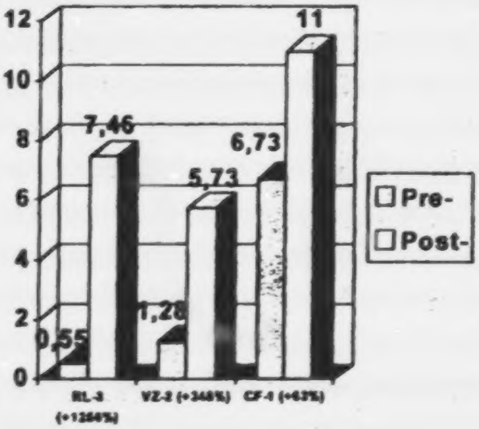


STUDY B
COMPARISON OF PERCENT STUDENT CHANGE IN PRE- AND POST- COGNITIVE TESTING FOR 72 HOURS OF INSTRUMENTAL ENRICHMENT INTERVENTION

- Coverage of Instruments
  - Organization of Dots 64%
  - Orientation in Space 90%
  - Comparisons 15%
  - Analytic Perception 35%

n = 6
72 hours of IE

Figure 13



STUDY C
COMPARISONS OF ARITHMETIC MEANS FOR PRE- AND POST- COGNITIVE TESTING FOR 72 HOURS OF INSTRUMENTAL ENRICHMENT INTERVENTION

- Coverage of Instruments
  - Organization of Dots 84%
  - Orientation in Space 100%
  - Comparisons 20%
  - Analytic Perception 70%

n = 15
72 hours of IE

Figure 14

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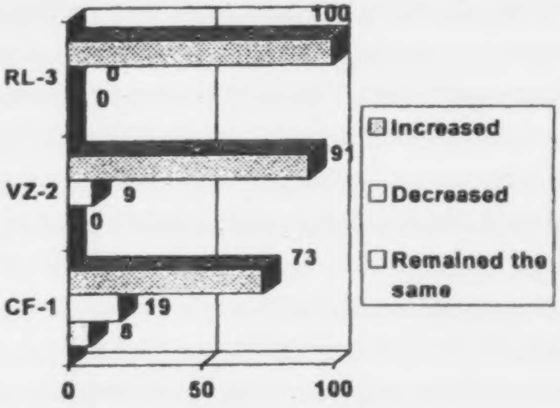
STUDY C
COMPARISON OF PERCENT STUDENT CHANGE IN PRE- AND POST- COGNITIVE TESTING FOR 72 HOURS OF INSTRUMENTAL ENRICHMENT INTERVENTION



- Coverage of Instruments
  - Organization of Dots 84%
  - Orientation in Space 100%
  - Comparisons 20%
  - Analytic Perception 70%

n = 15

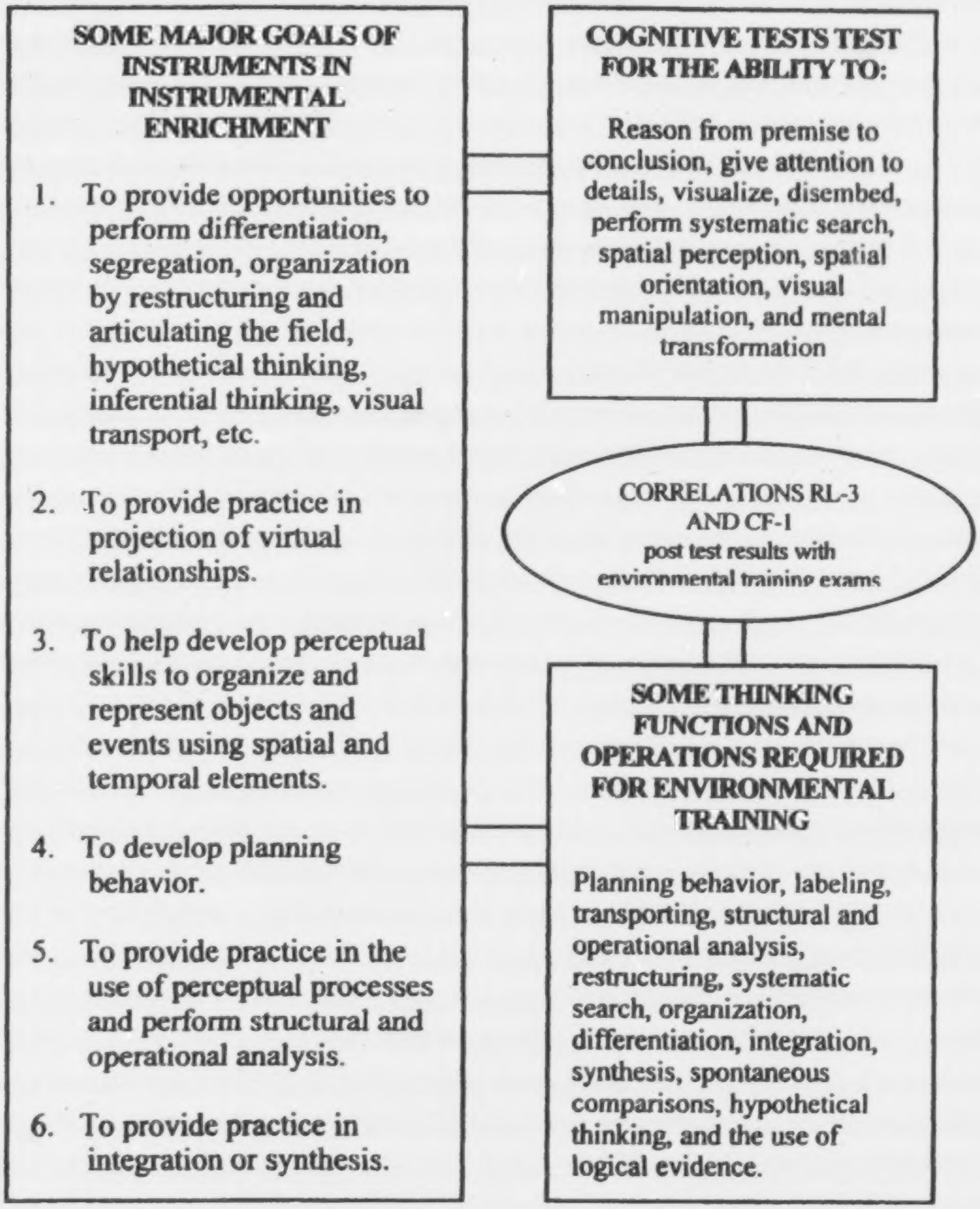
72 hours of IE

Figure 15

Percent Coverage of Instruments

STUDY	ORGANIZATION OF DOTS	ORIENTATION IN SPACE I	COMPARISONS	ANALYTIC PERCEPTION
A	62	10	8	20
B	64	90	15	35
C	84	100	20	70
D	73	59	17	20
E	100	100	35	55
F	55	59	0	0

Table 1



SOME MAJOR GOALS OF INSTRUMENTS IN INSTRUMENTAL ENRICHMENT

1. To provide opportunities to perform differentiation, segregation, organization by restructuring and articulating the field, hypothetical thinking, inferential thinking, visual transport, etc.
2. To provide practice in projection of virtual relationships.
3. To help develop perceptual skills to organize and represent objects and events using spatial and temporal elements.
4. To develop planning behavior.
5. To provide practice in the use of perceptual processes and perform structural and operational analysis.
6. To provide practice in integration or synthesis.

COGNITIVE TESTS TEST FOR THE ABILITY TO:

Reason from premise to conclusion, give attention to details, visualize, disembed, perform systematic search, spatial perception, spatial orientation, visual manipulation, and mental transformation

CORRELATIONS RL-3
AND CF-1
post test results with
environmental training exams

SOME THINKING FUNCTIONS AND OPERATIONS REQUIRED FOR ENVIRONMENTAL TRAINING

Planning behavior, labeling, transporting, structural and operational analysis, restructuring, systematic search, organization, differentiation, integration, synthesis, spontaneous comparisons, hypothetical thinking, and the use of logical evidence.

Diagram 1

◆ Learning Potential as a Basis for Study & Conceptualization of the Four Groups of Gifted Students at Risk

María Adriana Beristáin Mowbray

In the United States, early detection procedures for children considered to be educationally at risk have received greater attention since the 1960s, but in England this has only happened over the last ten years. Unfortunately, the "*at risk*" label was applied exclusively to children with learning problems and to those deprived of specific resources. Today, there is a increasing tendency to include children with manifest difficulties in acquiring educational skills, especially reading, writing and mathematics, and there is a general attempt to overcome these learning problems through early detection. Early detection does, in fact, evoke even greater problems - not just pertaining to instruments used, but also in terms of serious doubts regarding the usefulness of identifying, diagnosing, and treating children on the basis of the early detection results. The major and most dramatic question regarding the use of these instruments is their prognostic orientation. If these procedures are used to foresee children's educational development, they may have ominous consequences, since they are based exclusively on identifying the child's limitations whilst overlooking strong areas such as potential, talents, creativity, etc.

On the other hand, one must consider the changes undergone by the concept *gifted* - from the idea of genius to the present notion of gifted as being the most capable. There are multiple definitions of gifted in accordance with various explicit and implicit theories. Treffinger (1993), for example, considers the gifted as having the potential to be developed; he also proposes eliminating the dichotomy of gifted/not gifted and focusing on the child's special strength with an aim to developing it, thereby avoiding labeling that invariably leads to discrimination (Treffinger, 1987).

In view of these problems, we suggest giving up the one-dimensional perception of children as gifted or non-gifted and presenting a more holistic vision of their strengths and weaknesses, the limitations they must overcome, and their potential. For this reason, the goal of this paper is to define four groups of gifted children at risk.

Before presenting our own classification, the grand myths prominent in the education of the gifted must be reviewed to clarify our current perception of the so-called gifted phenomenon and to analyze the changes that occurred in the concept of the *gifted* and *gifted at risk*. Regarding the myths, we have observed that all educational settings and environments supposedly generate gifted people, whether or not they are recognized and whether or not they are identified as such. As Lange and German (1988) claimed "Education for the gifted has its own myths". Some of these refer to the characteristics of gifted subjects and others refer to procedures for their identification. Examples are: The gifted are more mature and emotionally unstable; they prefer to work alone; they are model students; they always show their gifted nature; they are good learners; they have good parents and live in good homes; they look or act differently; they always show their intelligence; they are respected by their fellow students, etc.

In addition, there is a particular mythology of the gifted with disabilities who are supposedly better treated in special education institutions, and a myth that all the gifted realize their great potential with nothing to stop them.

Furthermore, literature concerning the gifted devotes a considerable number of studies and articles to children who can be considered at risk. To mention some, there are studies of highly creative children who experience difficulties and have language barriers (Susan Lara, 1994), studies on hidden talents of students from disadvantaged socioeconomic environments (Baldwin, 1994), studies that derive their philosophy from Gardner's concept of multiple intelligence, and studies on the evaluation of the social and emotional needs of the gifted (Gust, 1996).

Interest in this topic has increased recently, with great progress seen in research on children involved in the paradox of exceptionality. In fact, gifted children with learning problems have attracted researchers' attention as being *doubly exceptional*. Susan Baum (1985), Fox, Brody, and Tobin (1983), Kaufman and Kaufman (1981), and Withmore (1980) studied this population and offered explanations that emphasize the development of self-concept and self-esteem in these children. They state that frequently the child's giftedness is lost when the child is identified and labeled solely by his/ her learning problem. Baum (1990) proposed four general lines of action for dealing with these cases:

a) focusing on talent development;
b) providing an environment that values their individual differences;
c) offering strategies for comprehension and development of thinking skills;
d) trying to foster adequate self-esteem, so that they can be more aware of their strengths and their potential, and not only their weaknesses, minor alterations or problems.

Very recently studies have been carried out on the so-called gifted with Lack of Attention Span and/or Attention Disorder with Hyperactivity. Mendaglio (1995) mentions that attention problems and hyperactivity occur with greater frequency and in a stronger form among gifted subjects. Vail (1997) calls gifted children with behavioral problems *enigma children* and considers that they have learning difficulties, but also that they possess great, albeit hidden, intellectual abilities. She considers the following precepts vitally important in working with these children: Coordinated assistance; evaluation of both their strong and weak points; providing help for the development of talent and for remediation of problems, and taking into account their particular learning style.

In addition to these works, Wallace (1983) questioned the term *gifted* from two diametrically opposite points of view. On the one hand, all children have valuable attributes that show a gamut of different aptitudes and capacities; on the other, the *super-gifted* are unique cases, isolated and bearing traits of genius. Confronting these terms, she proposes the term *very capable* and the means for handling those very capable as *aspects of the means allocated for all children*. The *very capable* are those who demonstrate exceptional potential in one or various areas, and who require more attention than an ordinary school can offer. Wallace's work is important since it underscores avoiding labeling the exceptional child, and suggesting that a teacher should constantly evaluate each child's weak and strong points, stimulating the first with compensation and strengthening the second. She formulates three categories of very capable children: Children who are successful students, children who show problems that can obscure their intellectual capacity (some with behavioral problems), and students with exceptional, but hidden aptitudes or gifted underachievers. Tannenbaum finds underachievement difficult to explain but attributable to a lack of mediated learning experiences, related directly to the gifted at risk with Feuerstein's pedagogic lines of action.

Patricia Supless (1990), who studied the "gifted underachiever", attempts a common definition for these children, perceiving them as an ambiguous phenomenon, identifiable at all academic levels (mainly in secondary education). She describes them as lazy children, uninterested in school, bored, rebellious, with problems in one or two subjects, and incapable of relating to their teachers.

In all the cases of "gifted students with learning problems", a global review of so-called learning problems or minor alterations is required. This question has been belabored yet it demands urgent redefinition given the latest advances in knowledge and the current need, now greater than ever, to achieve equality in education.

For this purpose, we could consider, among others, the works carried out in the 1980s in the United States, at the National Conferences and Biennials of Gifted and Talented Disadvantaged Children. These were attended by great researchers such as Linda Addison, Margaret Kelso, June Maker, Mary Meeker, and others who identified and evaluated these children with the system of multicultural, pluralistic evaluation. They also suggested the use of other non-discriminatory evaluation procedures, centering above all on the development of *potential*, with special mention of the "Eugene Field" project. This project focuses on the study of small, potentially gifted children. In addition, they suggested focusing on the stimulation of cognitive growth and the promotion of self-esteem and self-guidance in these children.

In spite of the important contributions of these works, it has unfortunately been found that the term *disadvantaged* is invariably associated with immigrants or cultural groups in danger of disappearing, such as Chicanos, Puerto Ricans, Navajos, etc. The classic construction of the concept still bears xenophobic overtones with respect to third-world cultures and, therefore, to cultural hierarchical classes. No differentiation is made between culturally different subjects and the culturally disadvantaged so there are times when they are used as synonyms.

The P.E.A.P.A. "Propuesta de Evaluación y Atención de Potenciales de Aprendizaje"[proposal for evaluating and increasing learning potential], was formulated for the Ministry of Education of the State of Jalisco. It attempts to redefine the four large groups of *gifted at risk* in the context of national Mexican Education, focusing on Feuerstein's guidelines for pedagogic action.

Primarily, we propose the redefinition of the *gifted disadvantaged* along the guidelines of the Feuersteinian axiom of ***non-access to their own culture***. To special education experts such as ourselves, these children have a measure of gifted capacity, unrecognized as such, some unidentified developed capacity or potential, neither evaluated nor addressed in their family, their neighborhood, or their country. They are individuals who, in their particular niche, lack access to their own culture mainly due to a lack of Mediated Learning Experiences and due, also, to parental, family, and environmental low expectations of them. This author has termed the condition *zone of perceived proximal development* (Beristáin, 1997), based on Jesús Palacios' axiom (1987) which suggests considering the difference between parents, teachers, and specialists' expectations in regard to the subject's possibilities and what he/she is really capable of doing (with "certain" aid or assistance).

Feuerstein has broadened this definition of *gifted handicapped* to include the blind and visually impaired, the deaf, the mentally retarded, individuals with Down Syndrome and brain damage, and, currently, autistic children. All are considered subjects with *potential* and are assessed using the Learning Potential Assessment Device - LPAD, and treated with the help of Instrumental Enrichment - IE. He considers them to be subjects who require a series of experiences in mediated learning. In the United States, in the very sparse literature dealing with the gifted handicapped, the term *handicapped* is mentioned and/or used only as a synonym for learning problems, without restricting or offering alternatives for identification, evaluation, and care. We consider that these people, regardless of their incapacity and/or specifically to compensate for it, possess a gifted capacity as well as a developed capacity or potential which is unidentified, unevaluated and unattended to.

In the case of *gifted underachievers*, this is undoubtedly and clearly a definition that involves academic performance. As Tannenbaum did, we propose conceptualizing these children as subjects with gifted capacity, though not identified as such, with some unidentified capacity developed or as subjects with unevaluated or disregarded capacity. Likewise, we propose conceptualizing the causes of their unidentified giftedness as a lack of Mediated Learning Experience in the classroom, the school, and/or school logistics, including their teachers' and caregivers' low expectations regarding their possibilities, i.e. their *zone of perceived proximal development.*

In conclusion, we propose calling the last group *gifted with learning disabilities*. This group can be subdivided into children "*who have learning problems*" (due to learning disabilities such as probable "organic damage", with or without medical evidence) and victims of "*a defective learning process*" (mainly due to erroneous working methods in Mexico's special education system). We feel that this group contains subjects with a measure of unrecognized gifted capacity with some learning disability, for whom we will use Vail's term *enigma children*, and children with some unidentified developed capacity or with unevaluated and disregarded potential. There are those who show this paradox of exceptionality in their regular groups and who are first detected because of their problem. There are others who can first be recognized because of their gift, and/or others whose problem or giftedness remains unrecognized or unattended to in the classroom. These children, as with the three previous gifted groups at risk, need Mediated Learning Experiences and enrichment programs in their family, school, and community contexts.

All these subjects belonging to the four large groups of *gifted at risk individuals* obtain low or average results in the conventional tests, and the teaching they are exposed to addresses itself exclusively to their specific weaknesses. They need an alternative evaluation and care option. A reconceptualization of learning disabilities, problems, and incapacities of the gifted is needed. Changes in society's belief system are necessary. Our concept of these individuals must be based on their **possibilities**. Lastly, they should be perceived as people with potential and strengths, and in Mexico, the specialists must begin to consider them and carry out research on and for them.

We propose combining the notion of "*gifted at risk*" with Feuerstein's concept of learning potential. The notions of structural modifiability and mediated learning experiences may help redefine the differences in the conditions of possibility, strength, and potential.

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Translation: Grady Miller and María Luisa Arias

◆ *"On My Own"*[1] - A Program for Developing Coping Skills for Adolescents at Risk

Yael Shoshani

On My Own is a structured intervention program dealing with the development of coping skills for adolescents-at-risk and adolescents in general. Its objective is to foster and support the adolescent in developing skills for coping with a variety of everyday situations in order to prepare him for life "in the real world" - a world in which he must communicate effectively with his surroundings, initiate and foster various kinds of relationships, and adapt in an appropriate and positive manner to various frameworks, including family, peer groups, study and work.

On My Own was initiated because of a total lack of programs to deal with preparing adolescents-at-risk for adult life as an integrated task of the formal education system. It is our belief that programs emphasizing education as a preparation for work are among the highest priorities of education for all persons at all levels of school. Therefore, our program offers a long-term concept of introducing education for better coping with challenges of life and particularly the work market.

Developing a Program of Life Preparation

There are a number of perspectives from which one can perceive the need for developing programs which prepare the learner for life, especially for adolescents-at-risk. Two are particularly noteworthy. The first is the educational system and the second is the economic perspective of the labor market.

The Educational Concept

On My Own is based on the premise that the educational system is responsible for preparing special education students to become working citizens capable of making a living and becoming as independent as possible. By enhancing and enriching the range of their personal and working skills they will be able to realize their potential as gainfully employed, independent human beings.

While the program sets forth outlines for a comprehensive curriculum, its design allows for flexibility in adapting to individual needs and abilities. In keeping with this individualized approach, a variety of materials and techniques are used which allow for individualized instruction.

The program brings the students to a level at which they can integrate their personal and working skills into a holistic "personal map" - their own personal, social and work force identity.

Unlike other programs which merely "teach" the various subjects, *On My Own*'s students internalize skills by experiencing a variety of learning activities, including role play, group experiences and reflection. This integrated approach enriches the learning experience and prepares the graduate for a more mature confrontation with the "real world" with which he will deal after completing school.

At the time of the program's initiation, alarming percentages of special education adolescents were reported to have dropped out of school and work. There was also a high percentage of adolescents who shifted from school to school and from job to job.

By July 1988 the Special Education Law had been implemented in Israel. Its main tenets were:

- The educational system is responsible for the care of its special education students.
- The range of its responsibility has been extended to include ages 3-21.

Thus, our program came about at the right time.

The Labor Market Concept

The other perspective which concerned us was the economic one, which at the time was represented by the CPR and the CEOs in the U.S.A. These commissions (1986, 1991) pointed out that the majority of new workers entering the work market lack self-starting initiative, ability to apply their skills to new and unfamiliar problems, and ability to work effectively in groups. The CEOs also expressed profound concern about students coming to work with poor communication skills, goal-setting ability, work commitment, follow-through ability and work habits. They also touched upon the need for high ethical standards, as well as a sense of obligation to family, community and others in the workplace. The need to be a good listener and communicator, to show initiative, and a desire to learn and change was pointed out.

With the help of the Fortune 500 big industries, the commission listed five competencies and three elements of foundation which make possible the interplay of tomorrow's work market. They call these the "workplace know- how", which the educational system must be committed to imparting to youngsters in order to prepare them to compete successfully in the world labor market.

It is important to note that these deficiencies were prevalent among new workers in general, not to mention the populations-at-risk, who are even more lacking in these attributes.

Workplace Know-how

The know-how identified by Scans is made up of five competencies and a three-part foundation of skills and personal qualities that are needed for solid job performance. These include:

Competencies - Effective workers can productively use:

- Resources - allocating time, money, materials, space and staff.
- Interpersonal Skills - working on teams, teaching others, serving customers, leading, negotiating, and working well with people from culturally diverse backgrounds.
- Information - acquiring and evaluating data, organizing and maintaining files, interpreting and communicating, and using computers to process information.
- Systems - understanding social, organizational and technological systems, monitoring and correcting performance, and designing or improving systems.
- Technology - selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting technologies.

The Foundation - Competency requirements:

- Basic skills - reading, writing, arithmetic and mathematics, speaking and listening.
- Thinking skills - thinking creatively, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning.
- Personal qualities - individual responsibility, self-esteem, sociability, self-management and integrity.

The two perspectives mentioned above had contributed greatly to the development of the program *On My Own* for adolescents-at-risk. The coping skills chosen for providing better chances for survival at life and work were the following:

✍ self-awareness ✍ career awareness ✍ decision-making ✍ employability skills ✍ educational awareness ✍ adaptability to various frameworks ✍ self- marketing skills.

Target Population

The program was originally developed for adolescents-at-risk aged 13-16, who have learning difficulties, are slightly retarded, or function below their actual potential because of social-cultural deprivation. They must possess basic reading and writing skills at approximately the fourth grade level.

The program is equally suitable for students whose intellectual level is higher than that of the special education population, but who suffer from a certain degree of social or learning malfunctioning.

The program can also be applied to those aged 16-18 who are still attending an educational facility and whose functional characteristics are similar to those of the main target population.

The size of the main target population was estimated in 1988 at 12,000 adolescents per year. To those can be added several thousand other students who may benefit from the program.

Objectives of the Program *On My Own*

On My Own is designed to present, develop and improve personal and social skills which are indispensable for survival in the job market. Acquisition of these skills will provide the adolescent with a better-defined self-image with regard to his personality, his social relationships and his employment potential, and therefore will ease entry into the labor force.

Program Development

The program was developed along three venues:

A. Written materials;
B. Teacher Training Workshops;
C. Courseware units.

A. The program comprises 12 study units, which include Student Booklets, Teacher's Guides and supplementary material. It is structured as a series of group sessions in which the students discuss subjects raised by the program, and their reflections from, and implications for, the students' personal experiences in their daily lives. Through their experience, the students increase their self-awareness and practice skills such as decision-making, coping with group pressure and preparing for change and transition.

B. All the teachers operating the program take part in intensive in-service training over a two-to-three-year period. In the training workshops, the teachers practice group leading and mediation skills and deal with the use of the program in their classes, solving problems which arise in the classroom. The workshops are given by senior school psychologists and by specially trained teacher-facilitators.

Although extensive teacher-training had been taken into account in the initial planning of the project, the scope of the task was unexpected. Early testing indicated that substantially more intensive training of teachers using the program would be required. This is due to the innovative nature of the instructional material and the shift in the role of the teacher to that of group moderator, a dynamically more difficult task than traditional frontal teaching.

As a result, CET revised the Teacher's Guides to include comprehensive, highly detailed session plans. Every plan includes both an explanation of its rationale and the message to be conveyed, as well as a scenario of actual occurrences during the session, including implementational details, course of discussion, expected students' reactions and suggested responses. The guide material is structured so that the teacher will be able to enter the classroom without supplementary preparation. The teacher's guide for each study unit contains between seventy to one hundred pages; this unusual length could not have been anticipated at the project's inception. Following the first year of use, teacher reaction indicated a high level of satisfaction with the guide.

An in-service teacher training group was established in October 1990. The group sessions, conducted by a senior school psychologist, were convened on a biweekly basis. Participant feedback was positive and focused on the program's immediate impact on fostering new venues of communication, both among the students themselves and between students and teachers. Teachers found that even intimate subjects, never before raised in a school context, could be brought out into the open. The teacher training group continues over a period of 2-3 years, and is accredited by the Ministry of Education for in-service training remunerative purposes.

Program Implementation

As was mentioned above, our prime responsibility in implementing the program was to introduce it to adolescents-at-risk, in the various frameworks of the special education schools and classes throughout Israel. Students experiencing behavioral mal-adaptation, severe learning problems, mental deficiencies and psycho-social maladjustment were exposed to the program for at least one year, for a minimum of one hour weekly.

The social context in which the program took place was a small-group setting. This characteristic of the program's operation is of crucial importance, since it was emphasized that students in general, not to mention those at-risk, lack communication skills and the ability to listen and express themselves in multi-personal situations. It is also a well-known fact that they lack the ability to work effectively in groups.

These abilities can be enhanced and improved in small-group settings, encouraging self-expression and active listening, assertive and non-aggressive communication, and mutual respect and tolerance for beliefs, feelings, ideas and behaviors. These capabilities can then be extended to the class setting and to school and extracurricular peer activities.

Interestingly enough, it was our experience that these adolescents-at-risk had enriched their personal communication skills through the program in an unexpected manner. This phenomenon was facilitated both by new strengthened communication skills that the teachers were experiencing in their workshops, and by the program material they were dealing with, which they found relevant to their daily lives, their personal and social experiences.

Within the last 6-7 years, we have operated more than 100 groups of teachers, with an average of 15 teachers per group. Thus, at least 1,500 special education teachers have been trained in our workshops. Most of these groups met for at least two years.

We have also developed and run groups for school counselors and senior teachers who themselves were operating teachers' groups while at the same time working with groups of students. This model of teaching senior teachers enabled us to reach a large number of adolescents-at-risk.

C. *On My Own* is accompanied by two courseware units available for use in schools as well as for private purchase. The courseware is in the form of dialogues between the student and a character of the same age who "lives in the computer". In each dialogue, the computer character turns to his off-screen partner for help in discussing a particular problem, while choosing his ways of dealing with it. Thus each student develops his own unique personal dialogue with his onscreen peer.

Evaluative Research

An evaluative research study on *On My Own* was conducted between 1992 and 1997 by Michal Levi-Keren in cooperation with Prof. Arieh Lewy of Tel Aviv University. Empirical data on the program was collected from two groups of research population - students and teachers. The evaluation had three components: the conditions under which the program was operated, the process of its operation in classes, and the products which resulted from its operation. Findings indicate significant positive effects of the program on both teachers and students.

Processes of Teaching the Program

Data derived from questionnaires, which were given to a sample of teachers using the program *On My Own*, show satisfaction with the learning materials (the Teacher's Guide and Student's Booklet) which accompany their ongoing work with the program.

Observations conducted in a sample of classes in which the program was operated revealed that the students functioned in an appropriate and relevant manner during their **group work** and their **class discussions**. However, some difficulties did arise during the **individual work** in instances where the teacher assigned a task not detailed in the student's booklet which was difficult for the students to understand. Also, there were several cases in which the students did not entirely understand the messages of a given lesson, because of the teacher's way of developing and processing the material or of trying to get the message across. The observations also showed cases in which teachers did not adhere to the schedule recommended in the Teacher's Guide by the program's developers.

In observations conducted in various lessons not related to *On My Own,* the students showed less interest and involvement than they did in the *On My Own* lessons.

The reports of the students, both in special education and in regular education classes, who had experienced the program for at least one year, provided information on other aspects related to the ways in which the program was operated in classes. Most of the students reported active participation in the class sessions and free, candid expression of their emotions and thoughts. Most of them reported a personal commitment to the "contract" formulated together with the teacher, and thus expressed their acceptance of the "rules of the game" necessary for the creation of an atmosphere of openness and tolerance which facilitates the treatment of sensitive personal subjects discussed in the program's framework. The finding, according to which students report that they do not tend to share the feelings and thoughts arising from their activities in the program with their parents, also expressed their commitment to confidentiality, which is one of the main principles of the program's social "contract".

Products of Teaching the Program

In the study, an examination was made of the products of the program both for teachers and students. Regarding the **teachers**, an examination was conducted of their general feelings about their daily work and about the teaching strategies which they employ in lessons other than *On My Own*. The examination revealed that teachers in **special education** who teach the program do not show less teacher burnout than **special education** teachers not teaching the program. It is probable that examination of a group of **regular education** teachers would have enabled us to obtain a clearer picture of teacher burnout in teachers using the program as opposed to those not using it.

Other analyses revealed that the teachers working with the program believe in and have internalized its messages in various frameworks of activity in their classes, social relationships and even at home.

An additional examination was of the long-term effect of the program on the teachers' perceptions and viewpoints on teaching and on their own teaching behaviors in class. It was found that the teachers, as early on as during their first year of working with the program, tended to put the learner at the center of their teaching. Their approach to teaching was basically progressive: their views on relating class contents to the student's personal world were positive, and their way of coping with discipline problems in class was characterized by open-mindedness and tolerance. From the teachers' answers, it seemed that their work was indeed based on an outlook which supports individualization and the need to address the students' diversity. However, most of them did not tend to take responsibility and attribute the reasons for discipline problems to themselves or their teaching. Therefore, it was decided in 1997 to continue examining this issue of "locus of control" in teachers in a more thorough and comprehensive fashion.

Regarding **students,** the effect of the program was examined in relation to three areas: personality variables, academic achievement and viewpoints on the program. To examine **personality variables,** questionnaires of locus of control, social adaptation and self-image were given out in two consecutive years to students who were using the program and to a control group of students who were not. Analysis of the results testified to an improvement in the experiment group in their perception of their social adaptation and acceptance, due to using the program. The averages obtained from the experiment group as to locus of control and self-image were lower in the second year. These findings indicate the expected tendency of this group's examinees to assess themselves more realistically and objectively after exposure to the program.

For the examination of the cognitive products of the program, an **achievement exam** was administered to the students who had begun using the program as well as to a control group. Due to technical and budgetary delays, this follow-up of their academic achievements was discontinued, and therefore no conclusions can be drawn concerning the program's effect in this area.

In the area of the affective products of studying the program *On My Own,* the viewpoints of students in both special education and regular education regarding the program were examined. In general, it was found that the students found the program important and were satisfied with the activities taking place in its framework. They reported less satisfaction with the study materials. It also appeared that most of them reported transferring the messages of the program into real-life situations both inside and outside school, and felt that the program had made a significant contribution to their class's atmosphere and solidarity. The similarity in opinions between special education and regular education supports the possibility of the mainstreaming of special students into the regular education framework, at least in classes where non-academic subjects are learned.

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Appendix No. 1

The Theoretical Approach Underlying the Proposed Program

Graduates of the special education system frequently do not function well in the job market and often leave it completely. Studies in the U.S.A. have shown that these youngsters drop out mainly because the educational system does not prepare them for the work world (Brolin, 1985). Similar information has been gathered from educators in Israel, though no extensive study has been conducted here. The major conclusion which emerges from these studies is that there is no satisfactory comprehensive preparatory program (Brolin, 1985).

However, there are two main approaches to preparatory programs for special education students and adolescents-at-risk. The first approach particularly emphasizes the importance of the decision-making process, both at school and at work, that the special education student will apply throughout his life. This approach provides the students with diagnostic tools, mainly psychometric, which determine the best educational and/or professional course for the student. At the end of this stage students know which field they will pursue and, in most cases, what kind of work they will do. They have very little personal choice in the matter and are by and large "at the mercy" of the diagnostic results.

The other approach maintains that the decision-making process, especially during adolescence, is of marginal importance; rather, adolescents' functioning depends on their ability to cope in a mature way with the **changes** that occur in their world, both at home and at work. This ability is the outcome of a spectrum of psychological, sociological, educational, physical and economic factors that prepare them for the work world. This approach, which advocates dealing with the person as a whole, is becoming increasingly popular with vocational psychologists. Its pioneers and chief exponents are Ginzberg (1972), Super (1957, 1980), and Watts and Ballantine (1981). In the area of therapy and rehabilitation of the handicapped, we also find leading researchers who champion this approach and believe in the need to prepare special education pupils for a life of work (Miller, S.R., 1982; Brolin, 1979, 1986; Lynch, et al, 1982). These and other scholars regard the developmental and experiential processes as the primary factors in molding a relatively independent adult, capable of assuming responsibility for his life and his work.

The proposed program, which follows the second approach, focuses on seven elements which are vital for career education and preparation for better adjustment to the various spheres of the adolescent's life, including school, home and work (Miller, A.J., 1972). (See Appendix 2 for details on these seven elements.) The acquisition of these elements is achieved through a structured learning process (Goldstein A.P. et al, 1980). Herr and Cramer (1979) also emphasize the importance of these seven elements and strongly support the development of career education programs within the school system.

The social learning theorists, Goldstein, H. (1974) and Goldstein, A.P. et al (1980), support Super's theory and advocate training programs which develop skills important for mature functioning in social and professional situations. Based on their survey of the existing career education programs in the U.S.A., Alter and Gottlieb (1987) stress the importance of having a theoretical approach accompany the development of training programs in this area.

From our own survey of school-based career education programs based on the above elements, we learned about one program developed by the New York City Board of Education, Division of Special Education, for intermediate level students. Another, developed by Brolin (1978, 1986), is quite exhaustive, extremely interesting, but designed for a population more severely handicapped than that which our project addresses. His program offers an extensive curriculum in the areas of daily living skills, personal-social skills and occupational guidance and preparation. These skills are similar to those which Miller (1972) has found to be vital.

Both the programs mentioned have a carefully and well-designed structure, but lack guidelines for methodological application. Our program will attempt to integrate the two developmental programs, update them and adapt them to the specific needs of the 13-16 age group of Israel's special education adolescents-at-risk, and provide comprehensive methodological guidelines for effective implementation.

Appendix no. 2

On My Own – A Program For Developing Coping Skills for Adolescents

1) ***My Appearance***
    Do I know that my appearance can "open or close doors" for me?
    Would I like to make a change in my appearance?
    How much of an effort am I willing to invest?
2) ***Living with Feelings***
    Am I in touch with my feelings? With the feelings of others?
    How do I communicate my feelings?
    Do I express them in a way that helps me build positive relationships?
3) ***Making Decisions***
    How do I make a decision?
    How and where do I gather information? How do I check it out?
    Do I always examine more than one option?
    Do I weigh my potential gains and losses?
4) ***Coping***
    Everyone has his own "personal map" of strengths and weaknesses.
    How do I choose to cope with difficulties or challenges?
    How can I develop and expand my fields of interest?
5) ***Me and Others***
    Can I live without others?
    What do I invest in my relationships with others, and what do I get from them?
    What can I do to foster a good, constructive relationship?
6) ***Planning***
    Why should we plan? What do we plan?
    Time, route, budget, etc.......
    How should I plan so that I can function well and achieve the maximum?

7) ***My Skills and Abilities***
I have many skills and abilities.
What am I good at? What am I less good at?
It's worth checking and trying new things out.
I may discover new things about myself.....

8) ***"The Rules of the Game"***
"The rules of the game", in various frameworks - how do I get along with them?
What do these rules require of me?
What do I gain, planning them my way?

9) ***Becoming an Adult***
Do I take responsibility?
How do I cope with group pressure?
How much am I willing to invest in order to achieve my goals?

10) ***Towards Change***
Life is full of transitions and changes.
Do I fear them? Do I welcome them?
How do I get ready for them?

11) ***Choosing a Framework***
What do I have on my "personal map"?
How do I choose educational or vocational frameworks that suit me?
What information about myself and about different frameworks can help me choose?

12) ***"Marketing" Myself***
How do I present myself to different people in a variety of situations?
Which "self" do I want to sell?
How do I "market" myself effectively?

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[1] "On My Own" was developed at the Center for Educational Technology in Tel Aviv

◆ Basic Ph - The Story of Coping Resources

Mooli Lahad & Hava Ankor

Personality is one of the most familiar concepts in psychology; at the same time, it is one of the most difficult. Personality may be defined as the characteristics and ways of behaving that determine a person's unique adjustment to the environment (Hilgard 1971). Any description of the individual personality must take into account appearance, abilities, motives, emotional reactivity and the residues from earlier experiences that have shaped the person as we find him. The term "personality" is thus widely inclusive, but it is not synonymous with all psychology because it refers specifically to the given individual as he or she differs from other people. Each person reacts in his own way to the social pressures upon him. As Allport effectively put it: "The same fire that melts the butter hardens the egg" (Allport 1937). Personal differences in response may result from the biological equipment of the individual. But as we know, the biological potentialities of a child are soon socialized under the influence of significant persons. Beyond his unique biological inheritance and the specific ways in which the culture is transmitted to him, the individual is shaped by particular experiences.

Becker defined stress as the price a human being must pay in order to be alive. Thus, stress is a companion of life and a human has to face it from day one. We believe that this encounter shapes human coping skills. We are also interested in the way in which a person who is under stress meets the world. The model which we have developed conceptualizes this in a unique way through the use of story-making. But before we describe this model, we need to look at the concepts of stress, coping and resilience to understand the model more clearly.

Stress

The interactionist model of Dunham (1984) describes stress as "a process of behavioral, emotional, mental and physical reactions caused by prolonged, increasing or new pressures which are significantly greater than coping resources". This approach assumes stress to be a negative phenomenon, and it should be borne in mind that there are many positive aspects to stress not apparent in this definition. It must be emphasized that stress is something determined subjectively by each individual according to his assessment of the situation and his past experiences. If the situation is translated as a threat to the individual, then stress will result (May, 1950). This threat need not necessarily be physical in nature, it could also be of three other basic types: a threat against one's family, friends or belongings, a threat against one's psychological integrity and a threat to one's beliefs or values.

Coping

Coping, according to Haan (1982), is an attempt to overcome difficulties on equal terms. It is an encounter wherein people reach out and within themselves for resources to come to terms with their problems. Lazarus (1981) defines coping as the efforts to manage environmental and internal demands and conflicts among demands.

Coping mechanisms can be determined by direct questioning and by observation. Analysis of the many types of mechanisms reported and observed can be made according to a variety of classifications. Dunham (1981) distinguishes four basic types of resources: personal, interpersonal, organizational and community, each with its own implications regarding the individual's coping patterns.

Personal resources include work strategies, positive attitudes, out-of-work activities, in fact anything positive that the individual does or says to himself, by himself (including making work plans, resting, cleaning the house), with the aim of reducing stress. Interpersonal resources include receiving support from friends or family, enjoying social life, discussing problems and the like. Organizational resources are less used generally, but are of great support, for example, guidance from within the system, training courses and outside professional support. Communal resources refer to taking what the community has to offer in terms of activities outside the work setting and developing these outside interests.

Pearlin and Schooler (1978) outline three coping strategies: anticipatory, buffering and crisis management, roughly corresponding to the three stages of a crisis - before, during and after. Buffering strategies can be either active or passive, and all of the above further divide into positive and negative activities. The context will determine when these activities are either positive or negative. In certain circumstances, denial of the problem or refusing to recognize the full extent of the danger can be of benefit to the patient/victim, in others it can be a great impediment.

The value in the classification and categorization of these coping mechanisms lies in the field of stress prevention, to provide as many ways as possible for a group of varied individuals to cope. This will hopefully avoid the repetition of unhelpful or inappropriate behaviors in seeking to lessen or relieve the stressful situation. Some people appear to be immune to major stressors in life from an early age without having any specific "coping strategy training". They deal adequately with all that nature and nurture have put their way.

Historical Overview of Stress and Coping – "The Survival Game"

Historically, there were several theoretical attempts to describe the human code of survival. Some of these attempts tried to present an exclusive explanation, whilst others tried to highlight one aspect in relation to previous theories. One can deduce from these attempts six fundamental elements in explaining human survival. Freud (1933) stressed the **affective** world, both inner (i.e. unconscious) and overt (projection and transference), and it is Freud who stated that early emotional experiences, conflicts and fixations determine the way a person meets the world. Often this unconscious part overrides the transactions of the real world.

His students and colleagues, Erikson (1963) and Adler (1956), albeit from a different angle, highlighted the role of society and the **social** setting in the way a person meets the world, Adler in his theory of inferiority and the drive for power and Erikson in his eight stages of development.

Jung, who was originally a student of Freud's, emphasized the symbolic and archetypal element, **imagination**, "the culture heritage" and the fantastic inner and outer world. Jung also mentioned intuition as one of his types.

Other psychological theories have dismissed the whole idea of psyche and emotion and have attempted to describe the human behavior in terms of stimulus and response. This has been called behaviorism, but we tend to suggest that they should be called **physiologist**, because their theory suggests neuro-chemical chains of reaction results in behavior (Pavlov 1927). Before long, the **cognitive** school founded its own theory regarding the way a person meets the world, and they phrased it "*It's all in the mind*", or cognitive processes with errors of thought or perception.

Last but not least, there is the **belief and meaning** trend, presented by Maslow and later developed into a psychological theory and psychotherapeutic approach by Victor Frankl (1963). Based on his extreme experiences of the Holocaust, he founded the Logotherapy Movement.

We believe that these exclusive attempts to describe human psychic life have many disadvantages, and that human psychic life is more complex than the theoretical attempts to describe it on one or two dimensions. In our approach, we tend to relate to the six dimensions that, in our experience, underlie the coping style of the client: Belief and Values, Affect (emotional), Social, Imaginative, Cognitive, and Physiological. We have named it BASIC Ph. It is this multi-modal approach that suggests a combination between these elements in the unique coping style of each person.

Obviously, people react in more than one of these modes, and everyone has the potential to cope in all six modes, but each person develops his own special configuration. Most of us at different times have a preferred mode or modes of coping and will use this extensively. From hundreds of observations and interviews with people under stress (Lahad 1981,1984), it is apparent that each individual has a special way of coping and combining coping mechanisms.

In our research of coping mechanisms under stress (Lahad 1984, 1989), we have found different coping styles. There are those whose preferred mode of coping is cognitive- behavioral. The cognitive strategies include information gathering, problem solving, self navigation, internal conversation or lists of activities or preference. Another type will demonstrate an emotional or "affective" coping mode and will use expressions of emotion: crying, laughter or talking with someone about their experiences, or through non-verbal methods such as drawing, reading or writing.

A third type will opt for a social mode of coping and receive support from belonging to a group, having a task, taking a role and being part of an organization. A fourth will use imagination either to mask the brutal facts by day-dreaming pleasant thoughts, or divert their attention using guided imagery; or try and imagine additional solutions to the problem that go beyond the facts - improvisation. Type five will rely on belief and values to guide them through times of stress or crisis. Not only religious belief is meant here, political stands, beliefs or feelings of mission (meaning) are also intended, the need for self-fulfillment and strong "self" expressions. "Ph" type people are those who mainly react and cope by using physical expressions together with body movement. Their methods for coping with stress are relaxation, desensitization, physical exercise and activity. Expending energy is an important component in many modes of coping.

Resilience

How does the personal BASIC Ph develop? One approach is through the studies of resilience. Resilience is defined as self-stabilizing and overall healthy patterns of development which lead neither to a career of disordered behavior (drugs, delinquency etc.) nor to manifest mental or psychosomatic syndromes. It is noteworthy that temporary oscillations of individual behavior on the health-disorder spectrum under impact of an acute stressor are implied, but in the medium and long-term, a remission of symptoms should occur. The individual degree of resilience is understood as being relative insofar as quantitative and qualitative variations cannot be ruled out (Koferl 1989). It is only in this decade that empirical psychology has begun to conceptualize resilience, applying models which are based explicitly on the idea of healthy or adaptive development in the face of stressful influences, rather than by using derivatives of stress - disturbance models.

In retrospect, research into coping with stress has also produced decisive contributions. The primary appraisal category, "challenge" in Lazarus' stress model, is particularly worthy of consideration (Folkman and Lazarus, 1988). The transformation of the trend of negative pathogenic effects of a stressful life event through coping and reappraisal processes into a new homeostasis which promotes psychological and physical health is of outstanding importance for resilience research. Most recent variations of mainline stress models have, since the mid-eighties, taken account not only of psycho-pathological syndromes but also of variables in psychological health and well being, (e.g. Lazarus et al 1984, Moos 1984).

Empirical research has gained many insights into factors and mechanisms which are important to the development of a resilient person-environment relationship. These findings can be redefined and categorized within the model of BASIC Ph.

•	**B, Ph**	The way of coping and managing a single stressor or multiple risk factors, the decisive question being whether a person merely reacts or also acts (e.g. Rutter, 1985).
•	**C, B**	A low tendency towards problem avoidance or fatalism (e.g. Losel et al., 1989).
•	**B, C**	Cognitions of self-efficacy and self esteem (e.g. Rutter 1985).
•	**A, S**	Availability of an emotionally stable and trustworthy person during early childhood (e.g. Brandt 1984).
•	**S**	Stable emotional relationships with and positive experience in social communication with other (extra-familial) persons including a social support network of functional size, as well as satisfaction with the different types of support received.
•	**S, A, Ph**	Temperamental characteristics of a child which favor de-escalation and self-control in general as well as in acute crises but which also promote an overall uncomplicated child-parent relationship, even if both parents are in chronic discord (e.g. Chess and Thomas 1985).
•	**B, A, C**	The ability of the child to accept delay in gratification (e.g. Murphy 1987).
•	**I, C**	Curiosity, motivation and joy in exploratory behavior already as an infant, as well as motivation to observe and listen (e.g. Murphy 1987).
•	**C**	Higher IQ (e.g. Felsman and Valliant, 1987).
•	**B, I, C**	An open educational climate directed towards the acquisition of autonomy (e.g. Losel et al 1989).
•	**S**	Socially competent behavior despite chronic stress; helpfulness; popularity with peers and taking on of responsibility for siblings and sometimes also for ill parents (e.g. Werner 1989).
•	**Ph**	Physical attractiveness, particularly in girls (e.g. Elder et al, 1986).

Thus, we see that BASIC Ph can serve as a model for understanding coping and resilience.

Stressful situations become unbearable when they are prolonged and we are no longer capable, using the resources at our disposal, to be rid of or to lessen the stress. Under circumstances where repeated attempts do not avail, the situation could turn into a crisis. Many times a situation becomes a crisis because the individual uses "more of the same thing" to be rid of the stress. In other words, a person becomes set in the mould, using the same mode of coping endlessly, neither progressing nor changing anything. In this case the crisis stems from being stuck or from inflexibility. (On a primary prevention level our "multi-modal approach" aims to teach the individual a number of different options in order to gain flexibility in coping with stressful situations rather than reach a dead-end).

In crisis situations it is normal for people to feel bad, but they are not actually "ill", simply, their current distress is too hard for them to cope with. Hodgkinson (1991) suggests that up to 50% of the population exposed to disaster will be potential candidates for crisis intervention. From experience, we have learned that some will stay for lengthy treatment, many will meet with us just a few times and a minority will have just one or two meetings. In short-term intervention during emergencies, there is no time to develop prolonged contact or for taking long case histories.

Crisis Intervention and Coping Resources

Based on many researches and on our observations, we believe that in the case of emergency or crisis, the person will use his coping mechanisms in order to meet the challenges of the new situation. In our view, it is essential to assess the way a person meets the world before we can start the intervention. This goal has two objectives. The first is to help the helper to understand how the client functions - the ongoing dialogue, struggles and adjustments the client uses in order to survive, and the second is as a starting point for developing rapport with the client. This approach assumes that life contains many stresses which the client has met and coped with before the present stressful situation, and this way or these ways of coping must be assessed in order to be able to "speak" the client's language. A person in crisis sometimes stops believing or feeling that he can cope with anything, as if he could do nothing for himself. Coping activities which in the past have proved effective for the individual and successful in ongoing negotiations with reality, may need improvement, development, extension or to be rephrased, and they should not necessarily be reckoned to be passive, hindering or damaging.

Greenstone and Levinton (1981) list eight differences between short term psychotherapy and crisis intervention:

a. Focus: In therapy, the focus is on the past and its projection on conscious and unconscious situations in the present. Intervention deals **only** with the present, the past belonging to the period before the crisis.

b. The role of the therapist: In therapy, the therapist lets the client act by himself and only guides the client from a passive standpoint. In intervention, the therapist takes an active and direct part in the meeting.

c. Control: In therapy, control of the dialogue is divided between therapist and client, whilst in intervention, the therapist controls in an authoritarian, non-equal way. The intervention therapist assumes full responsibility.

d. Awareness: The therapist in therapy tries to bring material to the awareness of the client, whilst in intervention, only matter which the client is aware of and can accept is dealt with in order to enlist all conscious strengths to control the situation.

e. Aims: The aim of therapy is to overcome the symptoms and improve his relations with himself and with others. The aim of intervention is immediate treatment of the crisis.

f. Time-range: For therapy, the treatment term is flexible and can be unlimited. The treatment term for intervention is always defined in advance.

g. The client: The client seeking therapy is usually suffering from emotional distress, whilst the person in a crisis is undergoing a sudden interruption in his ability to function and live normally.

h. The comparison between short term intervention and therapy is generally for therapists, but is valid for any external person intervening in a crisis.

Vitztum (1989) differentiates between crisis intervention and brief (or short-term) psychotherapy. Crisis intervention aims to give relief or help to a person in danger of coming apart in a specific situation of internal or external stress. Dynamic short-term treatment is intended to treat the client with his load of conflicts beyond his revealed situation, the treatment aim being to resolve the conflicts and try to change the coping style for a more adaptive functioning (repairing the self-image and self-esteem). The aim is to achieve, over and above an immediate relief, a long-term effect which will encompass solutions to old problems.

On the differences between the two approaches, Vitztum states that the focus in a crisis is primary - the situation itself. In short-term therapy, the focus is the nuclear conflict, the immediate results and symptoms receive a deeper meaning. The aim of the crisis intervention is to restore the homeostasis. In short-term therapy, the emphasis is on confrontation and interpretation, with the aim of connecting past and present, and the relationship of the transformation to the client.

Even though short-term dynamic therapy is an individual face to face treatment, in crisis intervention the context is much wider and includes the use of a wide range of approaches such as behavior, group and family therapy (the spouse or family can also take part in the session), as well as supportive medication and hypnosis.

BASIC Ph is a model to understand the strengths of the client and supply a framework which will enable the therapist to decide whether to suffice with crisis intervention or to introduce short-term psychotherapy.

Therefore, the task of the therapist in crisis intervention is to assess and help develop those useful behaviors as soon as possible. (Short-term intervention must identify as quickly as possible the client's mode of functioning and make decisions on the basis of the understanding of this situation.) The practical difference will be that in crisis intervention, the therapist will use what he found existing within the BASIC Ph, and in short-term psychotherapy, the therapist focuses on what is missing and on the negative coping aspects indicated.

Six Piece Storymaking - 6 PSM

Our assessment tool is based on the use of bibliotherapy, a therapeutic technique which uses the story and storytelling in order to assist the individual to reach self-awareness and improve internal and external communication. The basic assumption of the instrument described is that it will not always be easy for the client (usually a child but possibly an adolescent or adult) to relate what has happened, especially in a time of distress, but when there is a need for a quick evaluation of modes of coping so that intervention can begin, this instrument will be most useful. Thus, our assumption is: to tell a projected story based on the elements of fairy tales and myth, we will see the way the self projects itself in organized reality in order to meet the world.

Thus, we believe that this instrument somewhat answers the need for a quick assessment of coping modes, with the objective of helping the therapist/helper reach an understanding and develop contact with the client based on the therapist's understanding of the client's language. We have found that this can be done in a very short period of time of training, through the use of our instrument.

The Instrument

Tools: Pencil, paper and eraser.

Instructions given to the client are as follows:

We are going to tell a story without words. What I mean is, you scribble or draw the story in any way you wish, following my instructions (questions). There is no need to worry about how nice the drawing is or if it can be understood. You can always explain it. (Note - the story can be told in words).

a. Divide the page into six spaces in any way you want (but do not cut it).
b. Think of a main character - hero or heroine of any story, imaginary, legendary, film, show, or simply make one up. Think where this character lives and this will be the first picture.
c. The second picture will be the mission or task of that character. In every story or legend the main character has a task to fulfill. What is your hero/heroine's mission? That will be the second picture.
d. Third picture - who or what can help the main character, if at all?
e. Fourth picture - who or what stands in the way of his/her carrying out the mission / task?
f. Fifth picture - how will he/she cope with this obstacle?
g. Sixth picture - then what happened? Does it end or continue?

Those are the six parts of the story. Now with lines, shapes, symbols or drawings, compose your story. When you have finished, you can explain it to me. (There are no time limits.) When the client tells his story the therapist must listen to it on several levels.

1. the tone in which the story is told,
2. the context of the story and its message (themes),
3. finding the dominant coping modes of the story, (BASIC Ph).

Why do we ask these questions? M.L. von Franz (1987) the great researcher of fairy tales and stories from a Jungian approach, has found that these six elements are always represented in fairy tales the world round. She quoted Jung as saying "It is in fairy tales that one can best study the comparative anatomy of the psyche" (p. 11), and that the basic and maybe the only archetype is that of the self reflected in many ways. Von Franz herself says that fairy tales are the purest and simplest expression of collective, unconscious psychic processes (p. 1), and later, she states, "personally, I think that the most frequent way archetypal stories originate is through individual experiences" (p. 16). Our assumption is that by telling a projected story based on elements of fairytale and myth, we may be able to see the way that the self projects itself in organized reality in order to meet the world.

Many think that detecting coping behavior is only demonstrated in picture five, but this is not so. Each picture gives us information on coping modes. If, for example, the hero is a fairy, that gives a suggestion or hints at the use of imagination. The goal can be connected with values and beliefs. The help can be practical or imaginary, or maybe an inner belief. The obstacle can be social, imaginary, or very realistic and demanding of a solution. Coping can come in all kinds of ways, and the conclusion can be emotional, intellectual, social or imaginary. Therefore, it is important to pay attention and to determine the modes the individual does and does not utilize, and to begin the contact according to those lines.

In this story, reported by a drama therapy trainee, the story and analysis went as follows:

1. There was this man called Charlie and he doesn't like school and he got expelled a hundred years ago. There was this man Microchip and he's a spy for the enemy of Charlie but he disguises himself as Charlie's friend.
2. What he had to do is this: he tries to get a key because he's lost his front door key. He's lost it down there (points to drawing) at the other side of the sea. But they've added new weapons to stop him getting it.
3. The helper's called Marco and they try to stop (him ?), Marco and Charlie, with school dinners because Charlie did not like school dinners at this time. And the leader of the baddies is the Minotaur.
4. And what they do is: the helper goes up into the wall and Charlie goes up to the top of the wall and Marco sets alight a stick of dynamite and then he goes down to the next cannon and leaves another stick of dynamite. And then when they've exploded, Charlie jumps off into the sea.
5. When he walks into the sea there's a school dinner thrower he didn't see and it chucks a school dinner into the sky and (just passes) lands just past the school dinner thrower. And the same thing happened to the helper. And then the helper got a stick of dynamite and exploded a hole through the wall. And then at the end Microchip the spy, (because Charlie got the key and Microchip wasn't happy about it, as he was the spy), he shot Charlie.

1. C.A.I.S.C.S-.

2. C.Ph.C.Ph.C.(Ph-?)

3. S.C.S.I.C.A.C.S.I.

4. S.Ph.C.Ph.C.Ph.C.C.Ph.

5. Ph.I.C.Ph.I.Ph.Ph.C.S.

6. S.C.Ph.S.C.A.C.Ph-.

Chris has strong coping abilities in the cognitive area which is supported by his imagination and his feelings. A suggested approach would be information gathering and creative problem solving, finding solutions other than the obvious. The minus scores indicate conflict in both physical and social areas and suggests that Chris is having difficulties in his life and relationships. He does not have clear values about life, as indicated by the lack of B in his story. The overtones to the story are action and violence. The themes are betrayal, hurting, killing, school is a bad place, school food is bad, you can't trust anyone, life is a struggle and full of conflict. You can fight, but in the end you lose. The enemy is hidden. Just when you think you've won, a disaster will get you.

Conflicts: Betrayal ... loyalty/friendship.
Trust ... distrust
Hurting and killing ... nurturing and caring.
Fight ... help
Deceit ... openness
Loss ... win/gain.
Success/achievement ... failure

In clinical work, we use "**BASIC Ph**" in capital and small letters. The capital letters represent the more dominant characteristics and modalities, whilst small letters represent characteristics present in less intensity, or if we are not sure about the mode of operation, small letters. This should then be checked up by asking questions whilst investigating the story, or afterwards during work with the client. This method will be further discussed in a special article which will be devoted to a more statistical description of what is expected for each age group, which configurations there are and what they mean. In our clinical experience, we have found many configurations of behavior clusters which can be identified through the six-piece story techniques. Moreover, we have found that one can identify current conflicts which are causing difficulty, and possibly even the crux of some problem of which the individual is not even fully aware (marked by the minus sign). It is important to note that with this kind of diagnosis, partly verbal and partly non-verbal, one can identify coping resources and plan crisis intervention programs accordingly. So, it seems that with the aid of the structured story, we can locate relatively quickly a person's coping resources and conflict areas.

Intervention Programs as a Result of the Assessment of Coping Resources

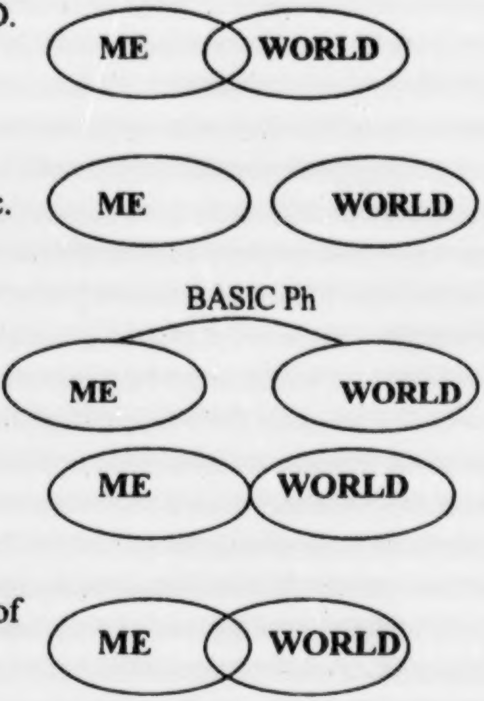
Intervention programs as a product of the location of coping resources are constructed from groups of techniques connected to the diagnosed mode of coping and configuration (see diagram 2). For example, in a case where we have identified that a person is more in the "B" mode, beliefs and values, and his main resources are techniques related to values clarification, then the most appropriate forms of intervention for this type of person will be activities encouraging the search for meaning such as Logotherapy, or techniques of value clarification and orders of preference.

In another case, where the assessment has shown the following configurations, "S" social, "C" cognitive and "I" imaginative, we can offer the following instruments: In the cognitive mode they include primarily, information gathering and problem solving. Since the person has been shown to have imaginative capabilities, ordinary problem solving is not enough for him. This means developing resourcefulness and the ability to find alternative solutions, or in the words of Watzlawick et al (1979), "second degree solutions". In addition, since we are talking about someone in whom social facets of coping have been identified, solutions in the problem solving exercise can be directed towards social targets such as taking a new role or responsibility in a group or organization. Experience teaches us that, within a relatively short time, one can plan an initial intervention program from which either a longer term treatment program will come about or a short intervention will suffice. There are other uses for the six-piece story, such as use of the story content itself. We will not expand in this article on those uses of the story, but will merely mention that by looking at the themes, subjects, conflicts and deliberations of the hero, one can check the stance and current emotional state of the storyteller. All this can be done on an interpretative or an analytical level, dynamically or with a Gestalt approach, to allow the storyteller to identify with different parts of the story and thus clarify the special meaning of the story for the storyteller himself here and now.

In summary, we have found that the six-piece story can be multi-dimensional, not only in the location of coping resources, but also multi-faceted in the course of short-term crisis intervention therapy or longer term treatment in a dynamic setting.

Self-	Emotions	Role	Intuition	Reality	Action
Value	Expression	Organization	Humor	Knowledge	Practical
B	**A**	**S**	**I**	**C**	**Ph**
Belief	***Affect***	***Social***	***Imagination***	***Cognition***	***Physical***
Frankl	Freud	Erikson	Jung	Lazarus	Pavlov
Maslow	Rogers	Adler	De Bono	Ellis	Watson
Attitudes	Listening	Social role,	Creativity	Information	Activities
Beliefs	skills	structure	Play	Order of	Exercise
Life-Span	Emotions	& skills.	Psychodrama	preference	Relaxation
Value-	Ventilation	Assertivenes	"As- if"	Problem	Eating
		s		solving	
clarification	Acceptance	groups	symbols	Self-navigation	Work
Meaning	Expression	Role-Play	Guided	Self-talk	
			fantasy		

Diagram 1 - BASIC Ph Multi-modal Model



The natural state is an overlap of ME and the WORLD. The connection is the way the individual meets the world through BASIC Ph.

Crisis - feeling that nothing is working for me ,"I'm lost" etc.

The therapist identifies the language of the individual and builds a **BASIC Ph** bridge with the client.

If not possible - then move to the forgotten language, i.e. the language the client uses least, that me psychotherapy

If successful, then the process of meeting the world starts again to be followed by the natural process of overlap.

Diagram 2 - Crisis Intervention According to BASIC Ph Model

Appendix 1 - BASIC Ph

Below are the major configurations of BASIC Ph and their interpretations.

B - Self-reliant, clear values, views and beliefs.

BC - Very rigid or concrete beliefs and opinions.

BA - Very sensitive beliefs and opinions, sometimes some imaginary beliefs.

BS - Social values.

A - Affect of all types.

(A-) - Aggressive feeling against the self and general destruction.

AS - Social emotion (similar to BS) or social support.

AS - Social emotion (similar to BS) or social support.

AI - Emotions mixed with imaginary characters, frightening dragons, monsters etc.

AC - An inclination to understand emotions by conceptualization, occasionally also neutralization or control of emotion by intellect.

S - Social, inclination to take a task upon oneself, to be in need of company, not necessarily for support but for a sense of purpose. A source of support in the social setting and in organizations.

SC - Socially aware and capable of solving problems, practical under conditions of stress.

SI - Social support from imaginary figures such as Superman.

(S-) - Feeling of alienation or rejection by society, hostility.

I - Broad imagination either in content or range.

IC - Improvisational ability based on factual knowledge.

(I-) - Morbid imagination.

C - Cognition, knowledge, organization and thought, acting according to common sense with concrete tasks.

CPh - Concrete ways of thinking, action oriented.

(C-) - Apparent reason for activity but without logic, e.g. going to the seaside because its winter! Lack of reality testing.

Ph - Physical, very physically expressive, full of activity - movement, eating, suffering, dancing, travelling etc.

(Ph-) - Psychosomatic ailments or wish to commit suicide.

Note - Whenever the minus sign appears it signifies a conflict in that particular category. It refers to a coping resource that due to existing circumstances reflects the distress of the individual.

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◆ Enhancing the Effectiveness of the Counselor through the Application of Mediated Learning Experience

Louis H. Falik

The complex interpersonal process that is counseling includes dimensions of interviewing skills, assessing the presenting concerns of the client, understanding dynamics of behavior and change, and the employment of a repertoire of techniques and appropriate interventions. To be effective, the counselor must use these skills in an organized, systematic, and intentional way. Whatever the theoretical or methodological orientation one works from, the counselor's responses must be cognizant in a general sense of the process of the interaction, and relate responses and interventions toward helping the client achieve behavioral change objectives that facilitate relevant and desired outcomes.

This complexity requires an integration, either explicitly in a theoretical or methodological context, or at an implicit functional level. Efficient functioning usually involves both levels. Beginning counselors often struggle with the integration, but as one gains experience the process starts to become integrated, and responses to the client - with increasing frequency - become seamless, spontaneous, and intuitive. This paper proposes an integrative model whose purpose is to help the beginning counselor, as well as more experienced counselors and therapists, identify the essential elements of the counseling/ therapeutic process, and apply a flexible and relevant repertoire of skills to formulate appropriate responses. The model identifies the integrated conditions of the therapeutic process that need to be systematically accounted for to create the conditions for change, and a bridging mechanism to connect specific process skills to the desired therapeutic change objectives.

The Theoretical and the Practical

The proposed model integrates a specific theoretical construct, and incorporates a large body of work in the area of interviewing skills and counseling process training. The theory is that of Professor Reuven Feuerstein's Structural Cognitive Modifiability (SCM) and Mediated Learning Experience (MLE) (1991). The base of practical application integrated with the SCM and MLE parameters comes from the microskills training movement stimulated by Carkhuff (1969), and elaborated by many others in the field, among them Ivey (1994), Egan (1986), and Kagan (1995). It has been proposed elsewhere (Falik and Feuerstein, 1990) that SCM is a theory that can usefully be applied to counseling and therapeutic process, and the model to be described below is the outgrowth of that proposition.

SCM rests on three central tenets, which have a natural and generic relevance to the counseling and psychotherapeutic process: 1. that there is a strong relationship between the parts and the whole of the person, 2. that individuals are naturally drawn to becoming involved in the process of change or transformation, and 3. that human development is self-perpetuating, self regulating, and actively seeking to be involved in the process of change. When the individual is blocked or impeded in the change process, there is a propensity for modifiability, stimulating natural and readily available adaptational tendencies. Development is not fixed or immutable - it is open to continuous change in response to the demands of the environment. An essential aspect of SCM is that interventions do not simply change specific behaviors, but change the inner structural nature of the individual, with the power to alter the course of development, at both behavioral and inner/process experience levels. The mechanism for this change is **Mediated Learning Experience (MLE)**, which has been described extensively according to criterial parameters, and which is integrated into the proposed model as the dynamic element in the counselor's decision making process.

The microskills movement in counselor education process research and training has identified phases, aspects, and elements generic to the counseling process. When structurally identified, isolated, and mastered, it is expected that these process elements will be integrated into an effective response repertoire enabling facilitation of client change objectives. The addition of MLE parameters to the process model serves as a bridge between structural skills and desired outcome objectives. The process skills can thus be viewed as the "how" of counseling, and the parameters of MLE as guides to specific interventions, or the "what" of the therapeutic intervention.

Elements of the Integrative Model

The goal of this work is the creation of a working model that can be utilized as a map and guide for the counselor in conceptualizing the counseling process, to determine initial and ongoing process responses relevant to the needs of the client, leading to the development of both short-term and longer range clinical goals.

The model incorporates four inter-related and dynamic elements:

Two major dimensions: 1. **developmental phases** or stages of the counseling process which represent temporal and experiential aspects of the counseling relationship, and 2. the functional **components of MLE** as criterial parameters that frame the therapeutic change objectives of the encounter.

Two response modalities that are present in all interpersonal interactions, and enter into the specific formulation of counseling responses: 3. the **focus of the interaction** on either content or process, and 4. the formulation of the **quality of the response**, as an overt/explicit or covert/implicit manner of expression.

These elements provide a descriptive picture (or map) of the relevant interactive dynamics of the counseling process, and can be selected, manipulated, and used to heighten the systematic, planful, purposive nature of the interactive encounter.

1. Developmental Phases

Four developmental phases have been identified in counseling process research (Ivey, 1994: Egan, 1991). An **attending** phase creates conditions under which the counseling will occur, and conveys messages regarding the safety of the situation, the importance of the work, the value of the client to the counselor, and the counselor's interest and commitment to the activity. This phase has both verbal and non-verbal attributes. The foundation is laid in this stage for further phases of the work, and thus is an essential initial part of an future effective relationship. A **listening** phase next occurs in the process, overlapping to some degree the attending phase. It is characterized by the client's being encouraged to "tell his or her story," and begin to gain access to the details of his/her experience. At this phase the client's experience is framed to gain clarity, recapture "lost" or devalued aspects of the experience, and identify areas amenable or needing to be viewed from a change perspective. The transition to **responding** phase activities is subtle, but is dependent on the creation of a clear and mutually identifiable frame. In this phase, the framed issues are searched, stretched, and challenged to determine the deeper, more meaningful and change oriented issues to be worked on. The work of this phase, in the employment of interviewing skills, is to create a "reframe," or a working reformulation of the critical change issues for the client, so that the deeper, thematically relevant and meaningful material becomes the focus for concerted and directed work. The final developmental phase is **intervening**, as the client and counselor move actively into addressing various specific aspects of the problem or issue. This requires a clear identification of the problem and careful attention to goals, desired outcomes, monitoring progress and resistance, and flexible utilization of strategies to change experiences and processes for the client. At this phase the counselor's specific repertoire of intervention activities (techniques, methodological tools, etc.) is employed.

2. Parameters of Mediated Learning Experience (MLE)

According to Feuerstein (1979, 1980, 1991) MLE is an central aspect of human learning experience. In the counseling relationship, it is essential that the counselor draw the client into an interaction that creates conditions for change, freeing up as many and powerful experiences as can be brought into the mutually focused human interaction, mediating awareness, growth, and change. MLE provides operationally described criterial dimensions of this human experience, and allows for the identification and manipulation of interviewing skill and process elements to achieve various necessary and relevant outcomes. Integrated into skill and process determinants, MLE becomes the "what" of the encounter - guiding what the counselor says or does, or chooses not to say or do. Put differently, MLE parameters assist the counselor in determining "what he or she wants to have happen" in the relationship at any given time or place.

There are currently 12 identified MLE parameters: three are considered "universal" in that they create the core conditions for an effective interpersonal interaction and thus are present to some degree in all human interactions. In the counseling process, they are more likely to be explicit and overt in early phases of the counseling process, and more implicit and overt in the later phases. The remaining nine are "situational" in that they may or may not be present given the particular conditions of the encounter (content being worked on, environmental events, etc.). Of this group of nine, the final three (see below) appear to be more closely related to the client's emergent belief system, becoming amenable to focus as a consequence of mediational experience with the earlier parameters. In summary, in any given interaction, the counselor's responses will contain varying combinations of different mediational objectives, with differential emphases, inclusion, intensity, and focus (which become further aspects of the integrative model to be described below).

The universal or core MLE parameters are: an **intentionality/ reciprocity** that conveys a purposeful and directed interaction, focusing on the purpose of the encounter and containing clear communication and direction; **transcendence** that bridges the immediate encounter to broader issues of experience and future meaning, directing the "here and now" to recurring themes and anticipated future experience; and the mediation of **meaning** that infuses the encounter with the relevance and importance of feelings, personal value, and acceptance and validation of the feeling and reasons for the interaction.

The parameters which are differentially emphasized depending on the relevance of the situation are: the mediation of **regulation and control of behavior** involving experiences self-monitoring, awareness of needs for and capacities to structure changes in responses, and development of insight into needs, skills, and past and future experiences; the mediation of **feelings of competence** that confirm abilities and skills, create an anticipation of success, and a sense of empowerment concerning success and images of success; the mediation of **sharing behavior** that involves another individual in activities of cooperation and empathy, involving listening and doing activities, openness and acceptance, and both the giving and receiving of relevant shared experiences; the mediation of **individuation and psychological differentiation** that emphasizes the uniqueness and acceptance of difference, valuing independence and the diversity of behavior and reactions; the mediation of **goal seeking, setting, achieving, and monitoring** that encourages the seeking of realistic goals, the setting of meaningful and achievable goals, planning for their achievement, and assessing their accomplishment; and the mediation of **challenge, novelty and complexity** that confronts the individual with new, complex, difficult experiences with an optimistic approach to the real or perceived difficulty and structures responses to overcome resistances by developing supportive attitudes and skills.

The final three parameters are situational to an extent, but rest upon successful mediation of those parameters described above. They are aspects of an orienting belief system, and are necessary to integrate changes in functioning into cognitive structures for sustained behavioral change and self-perpetuation: a mediation of an **awareness of the human being as a changing entity** that encourages the perspective of the possibility of change, with expectations of potential for growth and acceptance of changes already or to be experienced; the mediation of the **search for optimistic alternatives** that facilitates awareness of the potential for change and available opportunities in the range of available experiences, considering past experiences in light of their potential for growth and change; and the mediation of a **feeling of belonging** that confirms connections at social and emotional levels between the individual and the world around him/her, going outside the boundaries of self.

These parameters suggest creating in the client both an openness to experience and a need state that moves into specific activities within the counseling relationship and the outer life of the client.

3. The Focus of the Interaction: Content/Process

An interpersonal interaction is a blend of content and process. **Content** is the details and specifics of the individual's experience. **Process** is the feelings, effect, and immediate experience in the interaction (either related to the client's experience of the content or the immediate reactions to the counseling situation). While there is an essential interaction between content and process in every experience, in the formal process of conceptualizing a counseling relationship there is value and necessity in differentiating between them, and emphasizing one or the other at various phases of the work or on various specific mediational objectives. For example, it is often more comfortable for the client in the establishment of intentionality/reciprocity at the early phases of the relationship to focus more on the content of the client's experience, keeping process dimensions covert, until the level of safety and trust are sufficiently established so that the client can tolerate the more intense and focused process reactions that are present in the interaction. Later, process reactions are relevant, powerful, and meaningful for the client, experienced more overtly and focused on aspects of content - to avoid them is to diminish the intensity and relevance of the encounter. Decisions regarding the focus on content or process are part of the planful, systematic, and focused nature of the counseling encounter. Experienced counselors learn (eventually acting almost intuitively) when to emphasize one or the other, for the client's benefit and to facilitate the forward movement of the work.

4. The Quality of the Counselor's Response: Explicit/Implicit

The responses of the counselor can be formulated in an explicit (direct, overt, transparent) or in an implicit (indirect, subtle, covert) manner. The choice should be both strategic and tactical. Having a sense of the client's readiness, comfort, need states, ability to tolerate or profit from confrontation, as well as a sense of the longer range goals and directions for movement determines decision on this dimension of the interaction. The quality of response is somewhat independent of the MLE parameters and the focus of response. It is more related to the developmental phase of the counseling relationship. The latter is dependent upon the client's level of trust and comfort with the process, first established in the attending phase, the time and depth of exploration of content that occurred in the listening phase, and the readiness for confrontation and challenge that is the primary work of the responding phase. This dimension is also more subject to consideration of methodological orientation that is, the counselor's theoretical formulation about the ways in which to apply specific activities (technical interventions) in the counseling process.

Integrating these Dimensions into a Counseling Process Model

There are two implications to the development of an integrated model for the counseling process: 1. the potential for the counselor to be aware of and responsive to the multi-dimensionality of the process, and to use these dimensions in a conscious, intentional manner, and 2. to understand that at any point in the counseling relationship, any (and each) response formulated or evoked has a differential meaning according to the dimensions of the process reflected in the model. Isolating a given response or intervention can be seen structurally - for instructional or clinical process analysis purposes - giving the counselor a heightened sense of its meaning and functioning in the relationship, and enabling the education, re-elaboration, reduction, or adaptation of subsequent responses according to the criterial dimensions observed and understood. This capacity to analyze and manipulate the counseling process gives the counselor control and purpose, reflected in the ability to both understand and flexibly react to what is perceived.

As a specific example, a given response or intervention can be subjected to the following analysis: 1. what phase of the counseling process does it occur within, and what are the critical elements relative to that phase that need to be observed and accounted for; 2. what mediational objectives are being pursued, and how do they fit within the context of tactical and strategic goals for the client; 3. is the interaction primarily focused on content or process, what is the degree of overlap, on what basis is the focus of response chosen, and what is the client's reaction to the chosen focus; and 4. is the counselor's response framed in an overt, explicit manner or a covert and implicit manner, and on what basis is this choice being made. Further, once this analysis is undertaken, issues of directionality can be considered - how is the client responding, what has been the progression of the relationship and work, where does the counselor want to go and have occur for the client, and how does the current level and nature of response conform to this intentional progression.

Applications for Training and Supervision

This integrative model has been used in its developmental states with beginning counselors and psychotherapists, as an adjunct to initial interviewing skills training. It has also been used with more advanced students, as a bridge between their interviewing skills training and the initial phases of clinical process thinking. Experienced therapists have been introduced to the model, in the context of supervision and advanced training, as a method to retrospectively process their work and consider modifications in clinical responses, case formulation, and/or strategic planning.

Used in the above contexts (for instruction, supervision, and consulting), the model lends itself to the creation of instructional materials that students and practitioners can use to further their understanding of the process dimensions and practice implementation of the model in their work. There are three areas of focus to these materials: 1. process worksheets, 2. schematic depictions of basic counseling processes, and 3. instructional vignettes.

1. Process Worksheets

Figures 2 and 3 present examples of worksheets that counselors can use to review a particular session (using audio or video recordings) to identify responses within the context of the dimensions of the model. This can be elaborated into the creation of a session process map, wherein the dimensions of the model are applied to the overall content of the session, as a way of helping the counselor to obtain an overview of what occurred in the session, related to what the counselor sees him or herself being in the whole case.

2. Schematic Depictions of Basic Counseling Processes

The creation and use of schematic depictions of basic counseling process dimensions according to the model fosters understanding of the dynamics of the process, creating internalized structural maps of the process for the practitioner. Several examples are presented here: Figure 4 integrates the phases of the counseling process with goals, skills, and outcomes; Figure 5 depicts the ways in which content and process issues are related to the phases, skills and outcomes; Figure 6 illustrates the emphasis on content and process according to the phases of the counseling process; Figure 7 develops the concept of parallel process in counseling showing the contribution of MLE parameters to the utilization of those processes within the developmental phases of the work.

These are only a sample of the many applications and framings of counseling process dimensions that can be conceptualized from an integrated perspective, utilizing the mediational parameters to elaborate and make meaningful the integration.

3. Instructional Vignettes

Instructional vignettes that have embedded within them particular dimensions of the counseling process have been developed (see Figure 8). They are presented to student or workshop participants to give them practice with identifying and differentiating elements of the counseling process. They provide opportunities to discuss concepts, process understanding, and practice conceptualizing the process elements in a counseling relationship.

Summary and Conclusions

The integrative model described above has been used in a variety of instructional, supervisory, and consultative contexts. Initial reactions have been positive and encouraging, leading to further development of the dimensions and applications. It has not been subjected to experimental testing, so its ultimate validity remains to be determined. It shows promise of generating a new and differently focused methodology for teaching and learning the counseling process, particularly directed toward the gap between the acquisition of interviewing skills and clinical process analysis

- that so many students and therapists experience in their training and development.

Clearly, at this point in its development, the most unique contribution of the model is the integration of MLE criteria into the clinical process. Experience thus far indicates that using MLE in conjunction with the other defined elements of the counseling process creates a topological picture of the process which is used to good advantage, and holds the promise of creating an observational index to assess the extent to which a client has begun to experience inner structural changes as a consequence of the therapeutic encounter. At its most manifest level, the model guides the counselor in the formulation and/or evaluation of responses in the therapeutic relationship:

Assessing Structural Change: The parameters of mediation, considered as elements of inner change and adaptive or modificational potential can provide a perspective to identify client strengths and continuing needs. This can be reflected in behavioral situations, and as clients retain changes in the face of new or current stressors, and as they are generalized to new situations.

Formulating and Evaluating Responses: For the counselor, the use of such a model enables a careful, structured, and systematic evaluation of ongoing working dimensions of the counseling process. Reviewing tapes or transcripts of counseling session, within the perspective of the model, can identify the extent to which events in the session give evidence of the range of desired mediational objectives, and the kinds of responses formulated and implemented during the session. By further differentiating the process, the counselor can identify critical dimensions which enter into the formulation of new responses and improvement in the quality of the interaction. For example: a. intended outcomes (what did the counselor want to have happen at a particular point in the session); b. selection of a content or process focus (what material in the session did the client respond to, and why); c. the implicit or explicit quality of the responding in the session (were the responses indirect and covert, or more active, direct, and clearly delivered, and what were the reasons for this way of responding); and d. the appropriate and desired phase of the counseling process (where in the developmental stage of the counseling process does the work seem to be, and how does that analysis fit in with preconceived or perceived notions of the developmental progress of the relationship).

In summary, integrating MLE criteria into the dimensions of the counseling process holds promise of enabling counselors to better understand therapeutic interactions and plan appropriate responses and interventions in a systematic and effective manner. The explicit use of the functional parameters of mediated learning experience will help counselors to improve both the content and process of their work.

A Model for Integrating Mediated Learning Experience Criteria into the Counseling Process

		PHASE			
		Attending	**Listening**	**Responding**	**Intervening**
CRITERION	**Intentionality/Reciprocity**				
	overt/explicit covert/implicit	content process	content process	content process	content process
	Meaning				
	overt/explicit covert/implicit	content process	content process	content process	content process
	Transcendence				
	overt/explicit covert/implicit	content process	content process	content process	content process
	Competence				
	overt/explicit covert/implicit	content process	content process	content process	content process
	Regul./Control Behavior				
	overt/explicit covert/implicit	content process	content process	content process	content process
	Sharing Behavior				
	overt/explicit covert/implicit	content process	content process	content process	content process
	Individuation				
	overt/explicit covert/implicit	content process	content process	content process	content process
	Goal Planning				
	overt/explicit covert/implicit	content process	content process	content process	content process
	Challenge				
	overt/explicit covert/implicit	content process	content process	content process	content process
	Self-Change				
	overt/explicit covert/implicit	content process	content process	content process	content process
	Optimistic Alternatives				
	overt/explicit covert/implicit	content process	content process	content process	content process
	Feelings of Belonging				
	overt/explicit covert/implicit	content process	content process	content process	content process

Figure 1

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ORMULATING COUNSELING RESPONSES: INTEGRATING MLE WORKSHEET

fter reviewing a transcript or any audio or video recording of a session with a client, identify as any counselor behaviors as possible which evidence the MLE criterial components.*

mponent	Counselor Behavior	Intended Outcome	Content/ Process	Implicit/ Explicit	Phase **	
TENTIONALITY/ ECIPROCITY						
EANING						
ANSCENDENCE						
OMPETENCE						
G AND CONTROL BEHAVIOR						
IARING BEHAVIOR						
DIVIDUATION						
AL PLANNING/ HEIVING						
IALLENGE						
LF-CHANGE						
TIMISTIC TERNATIVES						
LONGING						

te: The first three components, (intentionality/reciprocity, meaning, and transcendence) should be present to e degree in all encoutners, but less overtly evidenced in later phases of the relationship. The remaining ponents will be variably present in relation to the specificand unique situation of the encounter.

In this column, record your perception of the level of effectiveness of the response. ., (Y) generally effective, (?) uncertain, or fragile, (N) did not appear to be effective.

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Figure 2

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MAPPING A SESSION ACCORDING TO THE MLE INTEGRATED MODEL

Dimensions of the Model:

Quality of Response: Implicit (I), Explicit (E), Balanced (Ba)

Focus of Response: Content (C), Process (P), Blended (Bl)

Phase of Counseling Process:

(code as many responses as possible for quality and focus of intervention)

MLE Component:	Attending	Listening	Responding	Intervening
Intentionality/ Reciprocity				
Meaning				
Transcendence				
Competence				
Reg and Control of Behavior				
Sharing Behavior				
Individuation				
Goal Planning/ Achieving				
Challenge				
Self-Change				
Optimistic Alternatives				
Belonging				

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Figure 3

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INTERVIEWING SKILLS RELATED TO PHASES OF THE COUNSELING PROCESS

	ATTENDING →	LISTENING →	RESPONDING →	INTERVENING
GOALS:	create working relationship, build trust and comfort	access to client issues, clear communication	identify deeper themes, meaning, connections; focus on discrepancies and conflicts	altering thoughts, feelings leading to change (behavioral, affective, etc.)
BASIC SKILLS:	eye contact facial expression vocal qualities body posture verbal tracking	open-ended questions clarifying and paraphrasing for details summarizing content	clarifying and paraphrasing for meaning summarizing to elicit themes pointing out discrepancies	problem identification initiation of action to stimulate change
MAIN OUTCOMES:	WORKING ALLIANCE →	FRAMING →	REFRAMING →	EDUCATIVE RE-EDUCATIVE REPARATIVE

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Figure 4 133

DEVELOPMENTAL PHASES OF THE COUNSELING PROCESS

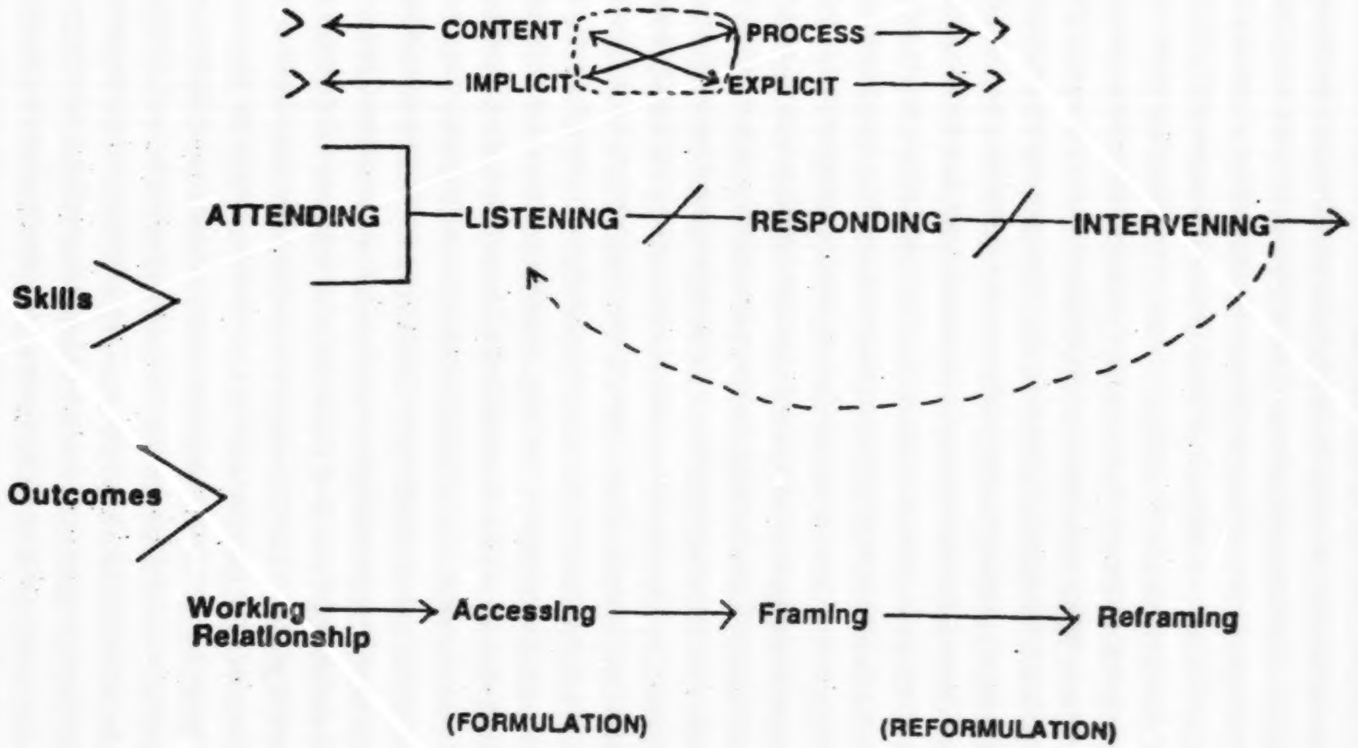
CONTENT
PROCESS
IMPLICIT
EXPLICIT
ATTENDING
LISTENING
RESPONDING
INTERVENING
Skills
Outcomes
Working Relationship
Accessing
Framing
Reframing
(FORMULATION)
(REFORMULATION)

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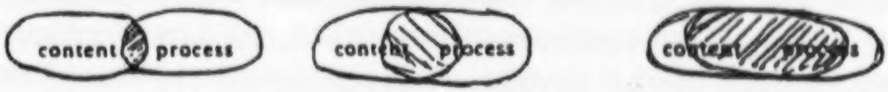
Figure 5

Figure 6

DISTINCTIONS BETWEEN CONTENT AND PROCESS RELATED TO PHASES OF THE COUNSELING PROCESS



EARLY PHASE	MIDDLE PHASE	LATE PHASE
Small overlap	More dynamic and strategic in initiating	More embedded.
Increased focus on content.	Balance between implicit and explicit.	More work takes placed in the overlapping area.
Process interactions are implicit but present in the interaction.	A bridging phase between content and process.	More work occurs at the explicit working level.
	More explaining of the boundaries between content and process.	

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Figure 6

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PARALLEL PROCESS IN COUNSELING

THE MLE BRIDGE TO DYNAMIC INTERACTION

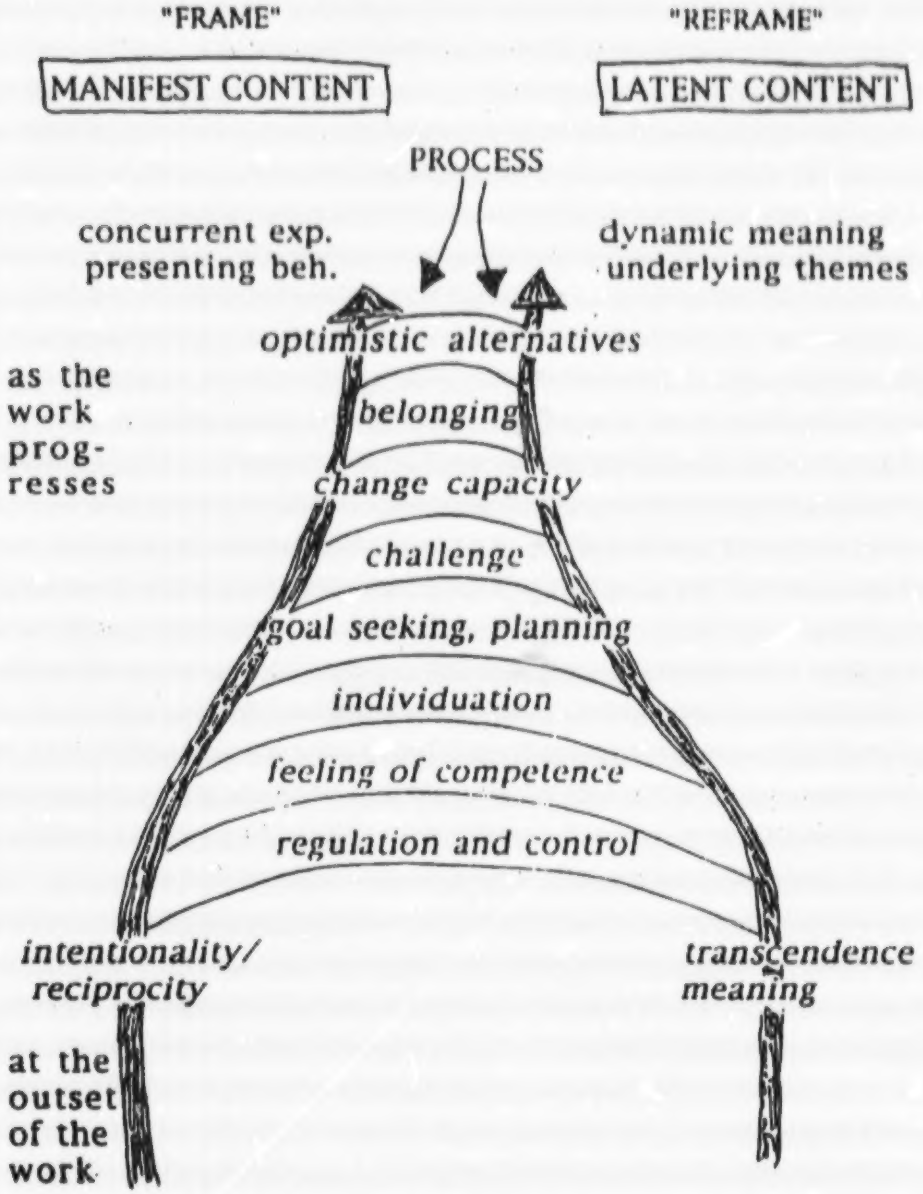
"FRAME"
"REFRAME"
MANIFEST CONTENT
LATENT CONTENT
PROCESS
concurrent exp.
presenting beh.
dynamic meaning
underlying themes
optimistic alternatives
as the work progresses
belonging
change capacity
challenge
goal seeking, planning
individuation
feeling of competence
regulation and control
intentionality/ reciprocity
transcendence meaning
at the outset of the work

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Figure 7

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FORMULATING INTERVENTIONS FROM THE MLE MODEL

For the situation presented here, indicate (1) what MLE criteria is being emphasized by the counselor, (2) the phase of counseling the encounter appears to be within (attending, listening, responding, intervening), (3) the focus of the intervention (content or process), and (4) the quality of the counselor's response (overt/expicit or covert/implicit).

Counseling Interaction I:

The client, at the second counseling session, has his arms crossed tightly across his chest. His legs are held together and he is not making eye contact. The counselor edges her chair forward a few inches, relaxes her body posture by a slight openning her arms and legs and turning toward the client. She raises her arms in an upward and outward manner and gently extends them toward the client as she begins to speak to him in a gentle but clear voice. The client is observed uncrossing his arms and legs, leaning forward slightly and making more eye contact. He also begins speaking about the issue of concern, starting to initiate conversation rather than being limited to direct responses to the counselor.

What is being mediated: ______________

Phase: _______ **Focus:** ______ **Quality:** ________

Other Mediational Criteria Present: ____________

Counseling Interaction II:

The client says that his mother and two teachers have been pushing him to go to college. He has not been a motivated or successful student in the past, but has recently begun to be interested in a creative writing class and produce quality work, which has been very well received and surprises him. The counselor responds "well, going to college is a goal that many students consider, and it can give you many options for your future which you may not have considered. If you did decide to go to college, what would be in it for you? What would you have to do to get ready for possibly going to college? What kind of college would you consider?"

What is being mediated: ___________________

Phase: ________ **Focus:** ______ **Quality:** ________

Other Mediational Criteria: ____________

Figure 8

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Counseling Interaction III:

A middle school student complains that he is not doing well in an English class, that it is hard for him to pay attention and remember the assignments. The counselor knows of his accomplishments in basketball, and asks him to identify what he does to pay attention to the plays and learn to play effectively with the team. The counselor reviews and identifies with him similar steps which can be used for achieving successfully in the English class. Each step is discussed, emphasizing its function in helping the client to pay attention, keep track of assignments, respond in the appropriate manner, with the client developing an understanding of what he can do to utlize them. Specific practice is suggested, with some role playing. Plans for monitoring and follow up on the steps are made. Direct "bridges" to the client's basketball skill learning strategies are made.

What is being mediated:___________________________

Phase:_________**Focus:**_______**Quality:**_________

Other Mediational Criteria: _______________

Counseling Interaction IV:

An adult client expresses concern that although he has scored very highly on a job placement test, his co-workers are suspicious and critical of his abilities to handle a higher level, supervisory job. The client is beginning to express doubts about his own abilities. The counselor explores the client's previous job experience, and elicits from the client his beliefs about his abilities, uncovering areas of successful accomplishment and more deeply held beliefs about his value and self worth. The counselor points out what he has accomplished in his previous and current job, reinforces abilities uncovered, and guides the client toward a reassessment of his sense of his abilities to do the new, higher level job. There is need to overcome inner doubts and peer rejection, which the counselor observes as he listens to the client's experiences and summarizes and clarifies what is discussed.

What is being mediated:___________________________

Phase: _________**Focus:**_______**Quality:**________

Other Mediational Criteria: ______________

Figure 8 (cont.)

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◆ Cognitive Enrichment to Improve University Students' Understanding of Physical Concepts: A Proposal for Application[1]

Gutiérrez F. Belisario, Peña A. Leda, Vignolo R. José

Introduction

"Introduction to Physics" constitutes a required course in the Civil Engineering curriculum of the Metropolitan Technical University in Santiago, Chile. The course offered in the Metropolitan Technical University differs significantly from other 'Introduction to Physics' courses taught in other universities (Gutiérrez et al., 1996). This course not only provides an overview of Classical and Modern Physics, but also places emphasize on the fact that some physical notions (e.g. mass, energy, lineal momentum, field) have been used in physics throughout its Classical and Modern history, experiencing however some important theoretical changes (e.g. Lavoisier's principle and the principle of conservation of energy are absorbed into the law of conservation of mass-energy; the principle of conservation of linear momentum is still valid in the high energy dynamics, providing the mass is a function of speed, etc.).

It could be argued that such a course should either become an abridged version of a standard Physics course, with reduced mathematical requirements, or one in which the student would be required to operate with equations pertaining to modern physics (e.g. Einstein's equation for photoelectric effect). However, our intention was quite different. One of the aims of this course was to help students acquire and develop a 'culture of physical thought' and facilitate their future participation in the regular Physics and Engineering Sciences courses. Another aim was to develop in the students certain intellectual skills necessary for formal abstract thinking, and teach them learning strategies (Gutiérrez et al., 1997).

The ongoing teaching of this course for more than six consecutive semesters has shown that very few students completed it successfully. The percentage of successful completion fluctuated between 17% and 19%. Moreover, there was little difference in the success of students who were taking the subject for the first, second or third time. Classroom observations, discussions with students, and the analysis of the examination materials allowed us to identify the following difficulties as causes of the students' lack of success.

Observed Deficiencies

A. *Handling written and oral expression in mother tongue (Spanish).* The problem in this sphere can be observed when students read test questions or have to express their questions verbally.

B. *Oral communication of definitions, laws and principles.* During a lesson students exhibit great difficulties in making statements. Usually there is a lack of accuracy in what they want to communicate.

C. *Stating the main ideas given in a lesson.* Even though students are encouraged to consult their notes when asked to state the main idea of the lesson, they have much difficulty summarizing them. They usually only refer to formulas, rarely resorting to procedures explained during the lesson that could help solve a difficult question.

D. *Handling abstract symbolic language (algebraic, geometric, formulas).* Many students are very slow in finding the unknown value in the linear equation or have difficulties exploring one or two formulas based on the problem data.

E. *Handling information in a problematic situation.* This is a crucial point which directly influences the students' performance. On one hand, students do not appreciate and, consequently do not use diagrams or schematic representations which would enable them to order and rearrange the information received. On the other hand, students' preconceptions constitute serious obstacles for handling the information because these misconceptions induce students to commit errors of interpretation and statement.

F. *Determination of relationships that allow students to discover the value of an unknown quantity.* Very few students understand the relationship between the number of unknown quantities and the number of independent equations that contain them. Students show impulsiveness when they write equations, i.e. they do not take time to think about the usefulness of these equations for problem solving. Moreover, students have difficulties transferring already obtained results to new or unfamiliar situations.

G. *Lack of alternative techniques for efficient studying and learning.* The lack of efficient strategies that would guarantee a good quality of learning accounts for many of the mistakes made by students in the classroom and while studying independently.

H. *Deficiencies in the affective domain*. Students demonstrate low self-esteem, unawareness of their own potentials and abilities, low perseverance and low motivation that interfere with learning progress.

Development Plan

It is evident from the above analysis of the students' difficulties that they do not stem from specific problems associated with physical knowledge but from more general cognitive deficiencies. For this reason we suggest that a special cognitive intervention program be offered to the students who fail the Introduction to Physics course. These students need alternative methods for overcoming the disadvantages and deficiencies that prevent them from obtaining better academic results and from having a better opinion of themselves and of others. We assume that once these more general cognitive problems are taken care of the students will be able to adapt to the challenges of the educational environment, which at present are essentially of a cultural nature and in the future will be more closely related to their work. Through the application of the cognitive enrichment program we expect students to reach higher levels of learning, become more receptive and open to changes, and achieve greater modifiability.

The concept of cognitive intervention responds to the reality of students' difficulties. The success rate of those students who repeat Introduction to Physics once or twice was almost the same as that of those who did it for the first time. It can be concluded therefore that taking the course several times does not help in overcoming the disadvantages detected. Lowering academic demands, or reducing the contents would not offer a valid solution because such a reduced course would not be able to fulfill its goal. Neither is it reasonable to offer remedial physics lessons because the missing prerequisites are not in the content area, but in the area of cognitive functions and operations, as well as intrinsic motivation for the study of physics. The solution lies in the participation of students in an activity that would induce a change in their way of thinking, and develop strategies they could use in problem solving.

We suggest that the necessary intervention should be based on Feuerstein's theory and instruments aimed at the modification of deficient cognitive functions. His theory of Structural Cognitive Modifiability (Calero, 1995) includes the Mediated Learning Experience model and its applied cognitive intervention program, 'Instrumental Enrichment' (IE) (Martínez et al., 1990). The basic principle underlying this model of the learning process is that human beings are changeable - i.e., they are able to modify themselves through intentional acts - regardless of their previous cultural experiences or genetic endowment. Modifiability is achieved by introducing the Mediated Learning Experience principles into an instructional process. The IE program offers both a general model of mediated learning instruction and a particular set of tools for the improvement of deficient cognitive functioning. It was shown that instruction of introductory physics informed by the principles of mediated learning and IE is successful in improving the performance of weaker university students (Mehl, 1991).

Accordingly we suggest that the solution to the students' problems with Introduction to Physics can be found by offering them an Instrumental Enrichment Workshop for two semesters, four hours per week. Table 1 shows the model connecting the IE instrument to the target of intervention and those specific deficiencies that can be compensated for with their help. The empirical results of the pilot implementation carried out in 1998 will be reported elsewhere (Gutierrez et al, in preparation).

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INSTRUMENT	AIM OF TRAINING	INTERVENTION IN DISADVANTAGE
1. Organization of Dots	Projection of virtual relations, perseverance conservation, visual transport, precision and accuracy, planning, discrimination, impulsiveness repression.	Handling of abstract symbolic language, manipulation of information in a problem.
2. Orientation in Space I and II	Flexibility & plasticity in orientation, decentralization of individual, ability to take other points of view into consideration, distance as an interaction factor	Handling of mother tongue, oral communication, manipulation of information in a problem.
3. Comparisons	Systematic exploration, precision and discrimination, similarity judgement, classification and establishment of relations.	Manipulation of information in a problem, lack of alternative learning techniques.
4. Analytic Perception	Analysis and synthesis.	Statement of main ideas of a lesson, manipulation of information in a problem.
5. Categorization	Analysis and synthesis, extraction (drawing) of features (characteristics), comparative behavior & establishment of categories.	Statement of main ideas of a lesson, lack of alternative learning techniques, handling of mother tongue.
6. Numerical Progressions	Comparison, establishing virtual relations, inferential hypothetical thinking, precision & discrimination.	Oral communication, manipulation of information in a problem, handling of abstract symbolic language.
7. Family Relations	Systematic exploration, use of two or more sources of information at the same time, symbolic and hierarchical relations.	Determination of relations that enable the solving of an unknown quantity, handling of abstract symbolic language, manipulation of information in a problem.
8. Illustrations	Perception of a problem, definition of a problem, decoding of a piece of information, temporal orientation, stimulation of oral expression.	Manipulation of information in a problem, handling of mother tongue, oral communication.
9. Instructions	Analysis and synthesis, use of codes, hypothetical thinking, behavior planning.	Handling of mother tongue, oral communication, handling of abstract symbolic language, alternative learning techniques, manipulation of information in a problem.
10. Temporal Relations	Time as a stable and objective reference system, planning, sequential thinking.	Handling of abstract symbolic language, determination of relations that enable the solving of an unknown quantity, manipulation of information in a problem.
11. Syllogisms	Analysis of propositions and statements to check its veracity; discriminative inference between valid and not valid propositions and between possible and inevitable alternatives.	Determination of relations that enable the solving of an unknown quantity, handling of mother tongue, manipulation of information in a problem.
12. Transitive Relations	Conditions that enable the transferring of relations between two pairs of set members with a third pair, whose relationship is unknown.	Manipulation of information in a problem.
13. Representational Stencil Design	Mental representation of a sequence, visual transport of shapes, trial and error work.	Statement of main ideas of a lesson, handling of abstract symbolic language, manipulation of information in a problematic situation, determination of relations that enable the solving of an unknown quantity.

Table 1 - Intervention in disadvantages detected through IE instruments

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◆ Instrumental Enrichment Intervention with Disabled Children, Adolescents and Adults

C. Morosini, E. Carravieri, E Gnecchi, F. Scotti, & C. Piacentini

Introduction

1. Our rehabilitation model is based on holistic qualitative assessment that analyzes positive and negative interrelationships between the person, his or her development, environment and pathology; between intelligence, motor behavior and affective sphere; between biological, psychological and social components. These interrelationships dynamically influence the psychosomatic whole of an individual, his or her health condition and his/her environment.
2. This model is further based on contemporary literature, starting from neuroscience. In contemporary neuroscience the brain is seen as a dynamic processor of strategies constantly undergoing structural and functional changes. A modifiability of the brain is determined by its natural history, as well as by human experience and learning. We also base ourselves on long-established practice in the field of rehabilitation with the widest and most varied range of case histories - chiefly comprising severe motor, mental and behavioral disabilities. We are convinced that anybody, exposed to suitable stimulation, can improve in terms of adaptation and learning.
3. Thus, our holistic rehabilitation assessment transcends the classic medical model. We are not satisfied with just collecting quantitative data on the degree of severity of pathology and disability (to be placed at the lower limit in Vygotsky's ZPD). What we look for, instead is the upper limit of ZPD, that elicits, evokes all physical, psychological and social potential, actively obtained by the disabled subject under the competent lead of the rehabilitation professionals who, within the framework of optimal relational conditions, convey the subject himself/herself, the family, the school and the working environment what must be learned, how to learn it and how to transfer it to everyday life.
4. As a consequence, the rehabilitation program is a process where prevention, therapy and assistance intertwine activating the life of the disabled person and his/ her family. The rehabilitational relationship is not only of a therapeutic nature (in the sense of inhibiting pathological schemata and learning of adequate motor, mental, relational and behavioral schemata) but also of an educational and integrating nature.

MLE and Rehabilitation

The concept of mediated learning experience that was proposed, tested, and analyzed by Prof. Feuerstein is easily placed within our rehabilitation model and, in a way, provides further scientific evidence to it, so much so that we shall adopt it as a further training option for our rehabilitation professionals, for parents and the extended family, for the disabled person, the teachers and so on. In our rehabilitation practice, too, experiences of powerful and meaningful teaching may produce a radical change in the subject's cognitive style, well beyond the expected development in relation to a given pathology and/or disability. But, as in Feuerstein's experience, in our view many different non-specific stimuli are insufficient for producing change. It is only thanks to the quality of therapeutic, educational and affective mediation that the individual can develop a cognitive structure which will help him/her at a later stage to take direct advantage of environmental stimuli, select and process them in a personal way in order to achieve optimal adaptation to life environment, independent living and bio-psycho-social well-being in relation to the degree of disability.

The criteria of mediated learning, thus, provide a proper framework for our model: intentionality and reciprocity, transcendence and meaning, i.e. the key MLE criteria should characterize any rehabilitation relationship. We further believe that the professional tools developed by Feuerstein, i.e. LPAD and IE, can be employed as rehabilitation tools for the purpose of assessment, therapy, education, and integration. We did introduce IE in the rehabilitation program of some of our patients about an year ago. LPAD that was integrated into our evaluation of the psychomotor, cognitive and affective styles, has helped us to identify and highlight the cognitive weak points of our clients while detecting their remaining potential, thus being able to focus our attention on higher cognitive levels. Dynamic assessment helped us to identify cognitive functions in need of further development:

- planning
- restraining impulsiveness
- the simultaneous reference to two sources of information
- the lack of verbal tools at the output level

In each assessment session, mediation was offered in the following way: "There is always a secret how to do things better and I can teach it to you". Thus the assessment procedure is an interesting and gratifying experience that offers the mediatee an opportunity to think about what he/she has done.

It was interesting to note how with some patients who had been receiving remedial intervention for years and had come to a standstill at a point where it was commonly felt that no further improvement could be achieved owing to structural reasons, LPAD offered a broader view by showing us, through analysis of both the central and/or the peripheral aspects of mental act, how the manifest performance is dependent on:

- a low degree of motivation to perform the task
- a lack of some prerequisites
- a lack of higher cognitive skills (hypothesis testing)
- the inability to change one's own learning strategies.

By way of illustration we would like to present the following case of a 14-year old boy, who went into a post-encephalitic coma at the age of 16 months. According to our rehabilitative model, we had devised for him a multi-disciplinary therapeutic program aimed at fostering a fluid development in the motor, intellectual and affective spheres. Contrary to our expectations and our previous experience, this patient showed a disjointed modular development, progressing at some stages in motor aspects, at some other stages in creative-symbolic or verbal functions, but only partially developing his cognitive potential. All of this did not prevent him from attaining basic achievements in academic learning.

Our hypothesis was that mediation given to him was insufficient for the promotion of the harmonious development of the cognitive functions that had been impaired and/or disconnected as a result of brain damage at an early age. With the help of LPAD testing we were able to find out that this kind of disharmonious development was caused not so much by the structural brain damage but by the following factors:

- poor motivation and negative attitude towards symbolic tasks
- a lack of prerequisite classification skills
- a lack of top-down memorization strategies
- reduced need for precision in performance.

Feuerstein's theory teaches us that these deficiencies can manifest themselves at a peripheral level (input phase) or at a central level (elaboration phase), and that the severity of the damage in one phase (input) may hinder or limit proper functioning in the others (elaboration and/or output), thereby interfering with the subject's original processing and leading to pathological manifestations.

During LPAD testing our patient showed:

- At the input level:
  blurred and sweeping perception
  unplanned, unsystematic exploratory behavior
  deficient spatial orientation
  poor conservation of constancy
  impaired simultaneous reference to two or more sources of
  information, with fragmentary handling of data

- At the **elaboration** level that at first seemed to be severely affected:
  Lack of ability to perceive the existence of a problem and define it verbally
  Problem distinguishing between relevant and irrelevant cues
  Problem comparing different data.

The defective functioning could be attributed to the narrowness of the mental field generated by an episodic grasp of reality. At the same time by repeatedly presenting the task and offering adequate mediation, we were able to achieve significant improvements at all levels. These satisfactory results encouraged us to continue our work.

The rehabilitation challenge lies now in determining how long it will take to consolidate learning and mediated skills:

- How much repetition and effort will be required?
- How does the development of the self (psychomotor, cognitive and affective), contribute to the development of meta-cognitive awareness and understanding of one's own thought processes?
- How can we turn a passive recipient of information into an active processor and generator of new information?

Instrumental Enrichment

We included MLE and IE in our rehabilitation program about a year ago, using IE with a heterogeneous group of patients:

- Age: 10 to 30 years old
- Etiology: Down Syndrome, specific learning difficulties, psychomotor instability, behavioral and cognitive difficulties, post-coma (including both anoxic and traumatic conditions).

Following LPAD assessment ten patients have been attending IE sessions. Six patients who have similar cognitive potential and ability to work in synergy although adopting different processing modalities and strategies, work in small groups. Four patients, owing to the complexity of their conditions both in terms of personality and pathology, work individually.

In addition seven more have just started their LPAD assessment. Three of them were referred to IE intervention; four showed the need to be exposed to more and better focused MLE, before attending IE sessions. With the help of MLE and IE we intend to provide these and other patients, whose cognitive functioning is more severely affected, with cognitive prerequisites necessary for benefiting from cognitive intervention tools we already use, like computer-aided learning, neuro-psychological and psycho-motor rehabilitation.

Even though our IE practice is not extensive enough to let us draw conclusions at a scientific level, it does enable us to contribute a few remarks.

Preparation for Work on an IE Page

According to suggested practice, for each IE page the following parameters are defined: Objective, new elements, content analysis, mental operations and cognitive functions involved; degree of complexity, level of abstraction, and different strategies available. In addition in a simple, yet detailed way we describe possible rules and principles at different levels of abstraction, bearing in mind our patients' cognitive styles and levels of functioning, so as to help them develop realistic bridging.

How the IE Instruments are Applied

All our patients attend mainstream schools or vocational training courses and have reading and writing skills. They receive help from specialized support teachers (working inside or outside the classroom), working at alternative or supplementary programs (often very repetitive and overloaded) and at a slower pace to allow teachers to monitor their learning. Regarding these patients our goals are:

- To create task-intrinsic motivation. IE pages are unusual as compared to traditional teaching material and arouse interest and curiosity in children.
- To create intrinsic motivation towards higher cognitive functioning through habit formation. Some of these functions include: using precise verbal definitions; taking time to think before acting; using logical tools in comparison.
- To create insight including: Thinking about difficulties, anticipating possible difficulties, listening to others, formulating an alternative strategy to solve the problem.

Work on an IE page

Much emphasis is placed on creating a setting which is both accepting of the patient and rigorous in relation to the cognitive value of the task. Many patients who, at first, would ask for little or no help, or even reject it, with time have reduced their negative attitude and started to be more open and willing to discuss and share their experiences and problems. Some of them asked for constant physical proximity to the mediator, so as to be focused on the task and to obtain the needed reassurance. All of them are inexperienced in independent work and lack a feeling of competence. Some of the patients participating in IE sessions, have progressively changed their attitude and developed higher competence in independent work and a stronger feeling of competence in general. In fact, while at first they were surprised by the fact that they actually "know how to think" and could solve tasks independently, they subsequently gained an awareness of the process and started to use acquired knowledge as a starting point towards further goals. The concept of "help" was an opportunity for reflection and surprise, especially when patients found out that they can solve the task even without help. In order to control patients' impulsiveness and their tendency to finish the page without thinking about strategies and principles, it proved necessary to present some of them with half a page only. The time required to finish an IE page varied considerably from one subject to another owing to their different cognitive style, even though this did not affect performance quality.

Observations

During their work with IE pages some patients initiated discussion not related to the work context, but rather reflecting the subjective experience and affective-relational dynamics of each group member. First there was occasional fierce competition between patients stating they had used different strategies from those they had actually used just for the sake of countering the statements of the other group members. When analyzing the task and comparing strategies we observed the use of poor, inefficient and repetitive strategies. The work with IE error pages proved difficult for the mediator because patients revealed a natural tendency to reject the possibility of errors. This was very likely based on frustration previously experienced at school and at the same time on feeling omnipotent when facing the task. (This feeling was somehow mediated by an overprotective family environment or by a relatively undemanding and excessively gratifying school environment). It was subjectively difficult for us to find the right way of suggesting alternative strategies to patients without making the experience too frustrating for them. Thus patients had to receive mediation for adequate reinforcement and gratification, selection of stimuli, the need to plan, the possibility to "abstract" the error from the task, differentiation between the part and the whole, accepting external tools for comparison (e.g. dictionary), differentiating between what is possible and what is certain, adapting to one's own reality.

Synthesis and generalization proved to be the most difficult part and thus required great energy and preparatory work on the part of the mediator. Learners show little attention both to formulating and to reflecting upon this aspect of the task and as a consequence tend not to stick to the content. The generalization had to be formulated in phrases with a simple enough structure for it to be correctly understood. At times, patients pick up only one action connected to cognitive functions selected from only one of the phases (input, elaboration, output).

Bridging was introduced through examples from the patients' life experience: it was necessary to provide many examples so as to make the connection with the principle understood. The spontaneous examples offered by patients were few and lack originality, possibly owing to the learners' reduced inner experience and their lack of independent living. Even though experiencing different situations and despite our efforts to enlarge the scope of this activity learners tended to refer to examples drawn from the same contexts (cooking, sports, school, etc). Bridging became a constructive activity when we turned it into a hypothesis: "Suppose you were preparing your schoolbag, what would you need?" Sometimes the examples had little bearing on the generalization of the principle drawn from the page, thus when mediating we have to accept the patient's proposal while helping the patient to become aware of the fact that the example provided was not pertinent .

While finding it difficult to verbalize and synthesize the work done and the topics discussed learners demonstrated their ability to remember the various concepts when working again on pages. Some of our patients have rich verbal tools but do not always seem to use them adequately. Precision with definitions required considerable effort but it was worth making because in this way our patients were able to respond to communication pressure both at school and in their social life. As the IE general sub-goal states the acquisition of basic concepts and vocabulary both help to solve the scholastic problems and to face problem-solving situations in general.

Our patients liked the IE program - even those who demonstrated a lack of tolerance toward some other types of cognitive work.

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◆ Neurological and Psycho-Educational Rehabilitation

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The Don Calabria Peppino Vismara Institute is a multidisciplinary center located in a southern suburb of Milan, characterized by severe social disadvantage, social conflicts and a high rate of anti-social behavior.

The Institute conducts a number of interconnected projects and activities such as educational sport programs, rehabilitative ambulatory intervention for children with neurological problems or learning disabilities, full-time and day care for normal children with social problems as well as for disabled adolescents and adults. The Institute thereby represents a "safe haven" in a socially troubled "sea" offering a healthy opportunity to the local population, particularly to children and teenagers.

The Don Calabria Peppino Vismara Institute is supported by the Regional Government and the Department of Health. It offers rehabilitative treatment of children and adolescents with neurological disorders and social conditions that interfere with their normal learning and physical development. The staff includes qualified therapists, doctors, psychologists, educators, speech therapists, specialists in psycho-motor functions and musical therapists.

In 1975 Italy began implementing a radical integration policy placing all handicapped children in mainstream education. In view of the fact that, by law, all these children must be accepted in regular schools, special education classes have practically disappeared and those that do remain are attended only by seriously multiply-handicapped children. For a policy such as this to be successful the system must be well coordinated (Fig.1).

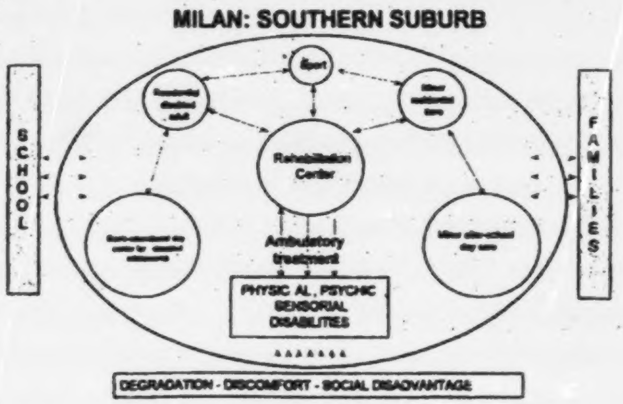
MILAN: SOUTHERN SUBURB
Sport
SCHOOL
FAMILIES
Rehabilitation Center
Ambulatory treatment
PHYSIC AL, PSYCHIC SENSORIAL DISABILITIES
DEGRADATION - DISCOMFORT - SOCIAL DISADVANTAGE

Figure 1

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The school staff must include a special education teacher to support the child with special needs in the classroom for a number of hours in accordance with the child's needs. This teacher coordinates the child's individual educational program with other regular teachers. The public health service contributes a team of professionals charged with preparing a functional diagnosis and a rehabilitative plan for the child.

As a first step the child's functional potential and conditions for future accomplishments are determined. Then a specific plan is prepared and implemented by teachers. This plan sets achievement targets for various educational, behavioral, learning, developmental, and cognitive areas and describes teaching methods. Progress is appraised twice a year and the results are submitted to the child's family that cooperates with the school. Contact between the school and clinical professional staff is maintained through periodical meetings. Children at social risk usually do not have a specialized teacher but are involved in specific small group projects run by regular class teachers.

In July 1999 six of the ten clinical professionals participated in Prof. Reuven Feuerstein's workshop on Cognitive Structural Modifiability and Mediated Learning Experience and were trained in dynamic assessment (LPAD) and the Instrumental Enrichment (IE) program.

We are in full agreement with Feuerstein's theory of Structural Modifiability in disabled subjects and believe that modifiability can be achieved not only in individuals at an early age but also in the elderly. Mediators who place themselves between the subject and the environment, mediating stimuli and helping the child to perceive and elaborate information, function as rehabilitative operators who help the disabled person to face different motor, cognitive and psychological problems thereby determining alternative, more successful and economic strategies for solving them.

According to Feuerstein's MLE theory, learning can be direct or mediated. In our subjects learning through mediation of another individual (parent, therapist, or teacher) is essential to his/her relation to the environment. Only through mediated learning and working in the child's zone of proximal development is it possible to modify the child and see if this change stimulates individual development. Prof. Feuerstein's view of the mind as an interferential system of functions that interact and develop through their reciprocal relationships conform with the theoretical principles of rehabilitative medicine and confirm our observations made during many years of rehabilitative work. In fact, we believe that is impossible to rehabilitate a single function without direct or indirect modification of other functions.

Over the last three years the use of LPAD has given us a greater understanding of how to help our subjects. Through LPAD we received information that was inaccessible to us from the results of the standard static tests. The disabled population treated at our Institute, and whose conditions are further impaired by social and familial problems, only reveals its true potential in the process of highly interactive relationships with the mediator which are characteristic of LPAD assessment. The LPAD procedure helps us to identify the actual deficient cognitive functions and provides information on non-intellective factors operating within the relationship.

The Institute

There are presently 188 children, adolescents, and young adults (between the ages of 7 months to 24 years) being treated at the Don Calabria Institute, with 88 below the age of eight, and 100 over eight. They were referred to the institute by practitioners, specialists in pediatric and child neurology hospital departments, teachers, social workers or by the families themselves because of physical, psychological, cognitive or sensorial abnormalities, which interfere with their development. These disorders are often caused by neurological problems, which are easily diagnosed at a primary medical level and which interfere with the normal organization of cognitive functions and prevent normal school achievements (Table 1).

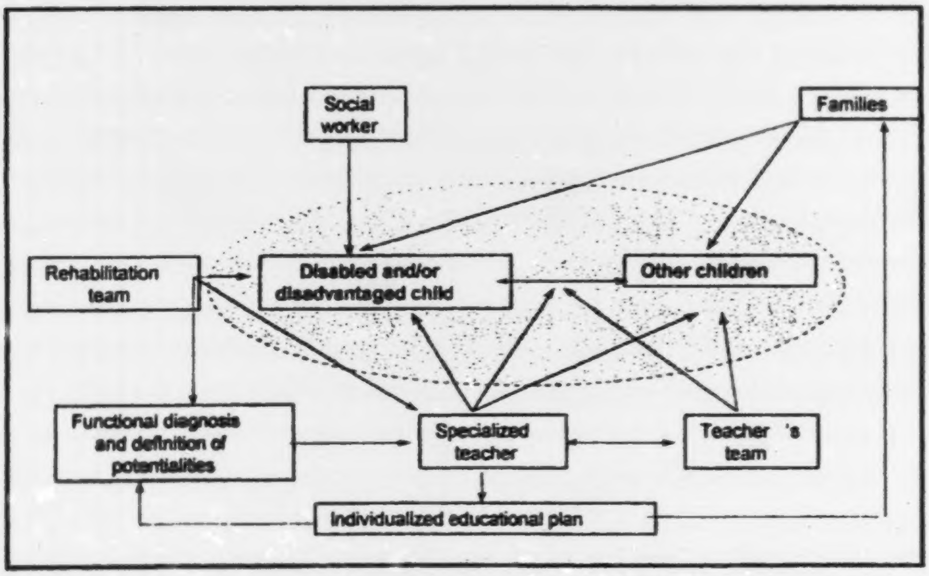
Social worker
Families
Rehabilitation team
Disabled and/or disadvantaged child
Other children
Functional diagnosis and definition of potentialities
Specialized teacher
Teacher 's team
Individualized educational plan

Table 1

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However, learning difficulties and complex social and family problems also often require consultations. The aim of the rehabilitative intervention is to thoroughly investigate the consequences of primary disease in every area of development and individual functioning, considering all factors that may contribute to recovery (**rehabilitative diagnosis**) and to define and conduct an individualized **rehabilitative project** aimed at developing individual potential by working in the subject's zone of proximal development (Vygotsky, 1986).

Rehabilitative medicine is based on the interdisciplinary approach in which all rehabilitative techniques and intervention modalities such as neuro- and psycho-motor training, speech therapy, cognitive and psycho-pedagogic approaches and social work are used to support the development of the patient's hidden potential. Considering our Institute's geographical and cultural situation, problems related to the disruption of social and/or family relationships can often be the primary and main cause of intellectual deficits. In families with low or very low socioeconomic and sociocultural levels, up against multiple problems, the child can look forward to far less opportunities. Moreover, some of our children suffer from neurological lesions compounded by cognitive functioning deficiencies and social and family difficulties. Together this results in a higher risk of abnormal development compared to the children who only suffer from a neurological problem. These complicated cases require much more rehabilitative intervention to succeed.

It was precisely for this reason that, following a meeting with Prof. Feuerstein during a 1994 conference sponsored by Mariani Foundation in Milan, our team began to implement Feuerstein's theory and the applied systems of LPAD and IE in the existent rehabilitative programs. LPAD assessment was administered to 38 of our 188 subjects. Twelve (31,5%) were considered to be at risk of social and/or family problems. Twenty-four children received IE lessons and 11 of this group (45,8%) were considered at risk of social and/or family problems.

188 SUBJECTS

Age:	7 months -	24 years
	< 8 years	> 8 years
	(88 subjects)	(100 subjects)

Groups of pathologies:	
Cerebral palsy	49
Mental deficiency (chromosomic or genetic dismorphic syndromes)	45
Psychopathological disturbances	30
Physical disabilities	27
Specific learning disabilities	10
Aspecific learning disabilities	13
Speech delay	8
Sensorial deficits	5
Metabolic disease	1

Table 2

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Two Study Cases: Nicola and Giovanni

Two 12-year-old boys were selected for case studies. One had been at our rehabilitative institute since the age of 4 and the other since the age of 7. In both cases social disadvantage was a factor that interfered with and impeded the rehabilitative process (Figure 2).

LPAD
Assessment
38 patients
(31.5 % social
and/or family
disturbances risk)

I E
Program
24 patients
(45.8 % social
and/or family
disturbances risk)

Figure 2

Nicola

Nicola had been given a neurological diagnosis of a specific speech developmental disorder (developmental dysphasia) and transmissive hypoachusia. He was first referred to our center at the age of 4 by his kindergarten teachers because of speech delay and he was given speech therapy. He went on to regular elementary school where he received special teacher assistance for 10 hours a week. Our staff met regularly with his school teachers to design an individualized educational plan for him.

Nicola is the eldest of three boys. His brothers aged 9 and 4 are also being treated at our Institute for developmental delay of their speech functions. Nicola's family moved to Milan from the south of Italy. They live in two-room apartment on a housing project, which they originally occupied without a official permission from the municipality. His father has a regular but very low-level job. The father's cultural level is also extremely low due to the fact that he did not complete compulsory school education.

Nicola's mother is practically illiterate and possesses very poor language skills. She occasionally works as a housekeeper. She finds it difficult to talk to teachers or professionals about her children's problems. She is often disappointed with the teachers and has the feeling that her children's problems are mainly due to the rehabilitative intervention itself. It is as if the assessment and treatment of Nicola's problems are in fact the cause of the impairment. She even has great difficulty providing her three children with necessary medical care. Frequent respiratory and ear infections are the cause of concomitant hypoachusia. At home, Nicola and his brothers spend most of their time watching television. The only person at home to care of the children is an elderly grandmother who lives with them.

Nicola received speech therapy irregularly between the ages of 4 and 10. Interruptions were due to his mother's inability of organize her son's attendance (his father was nearly always out at work) or to her periodic loss of confidence in rehabilitation and in Nicola's chances of improving. Nicola began to express himself in whole sentences after one year of speech therapy and his language became progressively richer. He learned reading and writing slowly though only reaching an elementary level and he had difficulty in mathematics.

Today, Nicola still has difficulty with articulation, and his progress in grammar and syntax is slow. Language comprehension is partially compromised though he is able to understand concrete topics and to express himself in short sentences. In our opinion Nicola has received very poor and inadequate mediation from his family, particularly following the birth of his youngest brother. His self esteem was very low and during the year before Feuerstein's methods were implemented his speech therapy appeared to be ineffectual in spite of his close and affectionate relationship with the therapist . Moreover the school mainstream program had become more taxing demanding a performance that he was unable to accomplish. This created an ever-increasing gap between the boy and other children. LPAD assessment proved to be extremely instrumental in Nicola's case in helping the staff to understand his cognitive functioning and in deciding how it should be modified, bearing in mind his serious family problems such as his parents' indifference to his improvement and the ambiguous relationships prevailing between his father, his mother, his teachers and other professionals.

Nicola received a short LPAD evaluation in four sessions as a precursor to entering the IE program at our institute. During the entire evaluation the boy appeared to be emotionally blocked and he was unable to show emotions neither relating to success or to failure. He demonstrated a very high level of attention and, from the end of the first session as he was working on Raven's Colored Matrices he began using strategies acquired through mediation during the first part of the test. The smallest difficulties had the effect of blocking him, but he was able to overcome this using the strategies he had learned. His verbal tools were extremely poor but he did attempt to use language appropriately.

Nicola began the IE program in January 1997 with another 9-year-old boy with specific learning disabilities (dyspraxia, dysgraphia) on a similar developmental level yet two years younger and from a different sociocultural level. During the first six months of IE the other little boy showed little tolerance towards Nicola and the sessions became difficult with Nicola becoming more and more blocked. Following the summer break two new children, aged nine and ten, both with specific learning disabilities, were brought into the group. None of the other children had social problems but one had family relationship difficulties. At that time, with the onset of the new school year, Nicola began to spend his afternoons at the Institute's after-school center. His mother no longer had to bring him to the sessions and therapy could now be given regularly.

As a member of this new group Nicola's motivation increased considerably and he gradually overcame his inhibitions. When he compared himself to the other three children who enjoyed normal social conditions yet had learning difficulties, his self-esteem improved. His motivation to solve problems increased and he began speaking spontaneously. His expressive speech improved and was manifested in his explanations to the other children of concrete episodes in his life.

Nicola has covered five IE instruments to date. The development of certain functions such as good precision, good organization abilities, quick work and good memory was observed. Nicola still has difficulties generalizing principles and he still needs to start work with a concrete example. His schoolteachers report that his performance is improving.

The type of social problems experienced by this family makes it very difficult to involve them in Nicola's progress. This youngster is presently open to mediation primarily from the therapist, the treatment group and through them, from the school. It is our hope that this positive mediation will lead to the structural modification of his functioning enabling him to make better use of cognitive functions in his adult life particularly in a group context.

Giovanni

Giovanni was first referred to the rehabilitation center at the age of seven. He had recently been admitted to our residential program together with his older brother. The placement was the result of a juvenile court order due to serious difficulties experienced by their mother in providing even the most elementary care for her children. The rehabilitation team was asked to intervene because of Giovanni's low level of mental functioning and his complete inability to read and write at the end of one year of regular school. Neurological examinations revealed no neurological impairment and there was no diagnosis of disease associated with developmental disorders. Giovanni's low mental functioning, confirmed by standard psychological tests, was attributed to his social and affective deprivation.

Giovanni's social and family environment was seriously depriving. He is the second child in a family that a generation ago migrated to Milan from the south of Italy. Giovanni's father, a school drop-out, was a "difficult teenager", who became a drug addict and spent four one-year periods in prison. He never took care of his children. He is now terminally ill with AIDS.

Giovanni's mother had her first son Giuseppe when she was 15 and Giovanni himself was born when his mother was 21. Following Giovanni's birth she became separated from her husband and had numerous relationships with different men. For years she was unable to find or keep a job and she and her children lived in temporary lodgings with different friends moving every few days. It is only over the last two years, with massive social support, that she has been able to find and maintain a job and a stable household.

Giovanni's older brother, Giuseppe, now 17 dropped out of school at the age of 14, then ran away from a youth residential program. He is currently being indited for theft and he quite possibly may be addicted to drugs. Giovanni's younger brother, Alessandro, born from his mother's relationship with a member of an organized crime gang has some scholastic difficulties and is defined as a "problematic child".

Between the ages of 7 and 10 Giovanni attended our rehabilitation center for psychomotoric therapy sessions with a relational approach aimed at giving him a protected and safe space where he could express positive aspects of himself including creativity, emotionality, and knowledge. He also returned to the first grade of regular school without a specialized teacher but the special attention of the whole teaching staff aware of his situation. Meetings were held between the rehabilitation center staff, the residential program staff and the school.

Although she loved her child, Giovanni's mother was barely involved due to her own personal problems and was almost completely detached from the rehabilitation project. She was allowed to take Giovanni home two years ago, but this brought about a deterioration in the child's behavior and learning performance. It was during that period that we decided to use a dynamic LPAD approach with Giovanni.

Owing to the fact that he was very fragile we chose to evaluate Giovanni gradually in 16 sessions following his psychomotoric therapy. He demonstrated a very low self-image and a very low feeling of competence. Especially at the beginning he frequently refused to cooperate, leaving the room or showing no frustration tolerance. We administered the Raven A-AB-B Colored Matrices, Organization of Dots, Complex Figure, and 16 Words Memory Test and he managed to solve problems quite well, though in a fragmentary manner. It was however, only after our fifth meeting that Giovanni became involved and demonstrated an ability to learn and apply strategies, though he still waited for intervention, at least in the form of focusing, before offering any answers. His reaction to frustration was extremely unfavorable and it was almost impossible to make him think about his mistakes.

By the end of the assessment Giovanni had modified his behavior significantly becoming more curious, involved and cooperative, though his self-esteem and frustration tolerance remained very low. His disappointment was particularly evident when the LPAD assessment ended. The modifiability in cognitive functions appeared insignificant.

We discussed the meaning of LPAD assessment with Giovanni and his mother and presented the IE program which was to be administered individually by another staff member. It became evident that Giovanni needed very intensive and close mediation to achieve a measure of control in his non-intellective functions and to be able to work on cognitive functions.

Problems of logistics such as the frequency of IE sessions and the timetable arose at the very beginning of IE therapy. Apart from this Giovanni showed such compulsive behavior that he was sometimes unable to remain seated in front of the mediator. In our opinion Giovanni was frightened by the thought that the IE program was a long-term project and he would to work with a different staff member. At the same time it just so happened that the psychomotor therapy sessions had to be stopped because of organizational difficulties and Giovanni's family situation deteriorated further.

Major deficiencies observed during the IE session were:

- A complete absence of rules, e.g. no respect for the timetable or for the duration of the session, incapacity to assume and keep a suitable position in front of the mediator, a lack of the basic forms of interpersonal behavior such as the use of "please", "thank you", "sorry";
- A lack of logical reasoning, poor verbal tools, difficulty to talk about his needs with a big gap between speech and action;
- An episodic grasp of reality. After each session Giovanni attempted to start again from the very beginning;
- Impulsive acting out behavior. It was difficult to make Giovanni stop this behavior and start thinking because he often refused help offered by the mediator. Giovanni also demonstrated aggressiveness, frustration and yielding to failure as a reaction to his difficulties.

- A need for immediate satisfaction and gratification in order to be involved. Giovanni also demonstrated serious emotional problems and evidence of negative challenge.

Mediation of intentionality, reciprocity and transcendence were the first objectives of the IE-based interaction and at the beginning the IE pages were just a pretext for introducing behavior rules based on reciprocal respect. In fact following a confrontation Giovanni reluctantly agreed to accept some simple written rules of reciprocal respect. Some IE sessions were used to try to organize Giovanni's thoughts and feelings, for example writing a letter to his mother.

The absence of supportive family members forced Giovanni to take full responsibility, together with the mediator, for his choices made during the IE program and for the continuity of the project. To attain this level of responsibility we were forced to cease activity - in response to Giovanni's persistent defiant behavior and noncompliance with rules - and mediate to him the meaning of the interruption and wait for a signal from him for renewed cooperation. Giovanni actually did this after a few days, writing a note to the mediator asking him to start again "properly".

The IE sessions with Giovanni are strife with problems. The mediator attempts to present himself as a point of reference regarding modalities and times of interaction. He requests strict adherence to a schedule, ignores Giovanni's aggressive behavior, continuously refers to positive modalities of interaction and shows a positive attitude toward the as yet unrealized capacities of the boy.

It is only during the last two months of work with Giovanni, i.e. one year since the beginning of the program, that he has accepted the IE instruments and has been able to understand and solve the required tasks, adopting strategies for their solution. It is still very difficult for him to find examples, rules and generalizations, and to create "bridges".

Giovanni's family situation is still very complicated and his mother is far from accepting cooperation. We feel, however, that at this stage we can start real work on Giovanni's mental functioning, as he has understood that better use of his cognitive abilities is probably the only chance for him to escape from a future of deviation and exclusion from the society.

Conclusion

Feuerstein's theory of mediated learning experience and structural cognitive modifiability together with LPAD dynamic assessment and the IE program are important tools in a rehabilitation center. When social and family problems coexist with the developmental disorders of the child, or are the primary cause of them, thus impeding the child's realization of his/her potential, Feuerstein's methodology provides significant opportunities for accessing the deeper levels of mental functioning and focusing on non-intellectual factors. This approach gives the rehabilitation team the chance to modify their perception of the child and enrich the rehabilitation program bringing about positive changes in the subject. One may thereby speak of the modifiability of both the mediator and the mediatee.

Even though family involvement in some cases proves to be untenable, and the lack of previous mediation severely curtails the child's modifiability, our cases demonstrate that through mediation we can create certain change in the child's non-intellectual factors. This can be used as a first necessary step toward work on cognitive functions. In Nicola's case mediation in a group was satisfactory. For Giovanni very close and intensive individual mediation of intentionality and reciprocity proved to be the only way to achieve minimal change in non-intellective factors. The next phase will include a lengthy period of IE intervention carried out in a piecemeal manner by the same mediator and aimed at bringing Giovanni to a state of automediation (Fig. 4).

NICOLA	GIOVANNI
• Possibility of modifiability	• Modifiability not lasting after mediation
• Presence of family rules	• No family rules
• Poor mediation from family	• Complete absence of mediation from family
• Mediation through the group	• Mediation through the mediator
• Better school achievements	• Persistence of school difficulties

Figure 4

When social and or family problems are very serious, as in some of our cases, we feel that the rehabilitative approach, including Feuerstein's methodology, must be carried out in a highly individual, personalized manner. The first step must always be the search for more effective mediation. Although at the beginning of this process the subject's modifiability sometimes appears to be minimal, a great deal of modifiability is produced in the mediator. This, in itself, leads to a better understanding of children at risk and their environment, and challenges professionals to search for a positive way of solving the children's problems.

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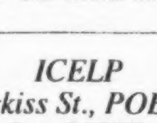

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